

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII.

SATURDAY, SEPTEMBER 21, 1895.

No. 12.

ORIGINAL ARTICLES.

OTITIS MEDIA AS A COMPLICATION OF PNEUMONIA.¹

BY F. P. BALL, M.D.,
OF LOCK HAVEN, PA.

It is the intention in this paper to call attention to otitis media as it occurs complicating pneumonia in children, and especially that form of pneumonia most common in childhood, broncho-pneumonia or catarrhal pneumonia. In fact, the three cases reported were all cases of otitis media complicating catarrhal pneumonia, and the very marked and decided cerebral symptoms, as will be seen, were entirely due to this complication.

Of course, otitis media often occurs as a complication of other diseases, and, in fact, quite recently I have seen it stated, of many other diseases, even including intestinal diseases. Indeed, it is not yet fully appreciated—or at least our knowledge does not yet go far enough to say—how many cases of what appears to be meningeal inflammation occurring in the course of other diseases is due to disturbance within the tympanic cavity. It is not fully appreciated because we have not been accustomed to search for and understand the effect of tympanic pressure upon the cerebral circulation. We have always understood and in some measure expected a complication of this character in a certain number of cases of the exanthematous diseases, as scarlatina, measles, etc., and have accounted for the cerebral disturbance in such cases by saying that there has been an extension of inflammation from the throat through the Eustachian tube and tympanic cavity to the meninges of the brain. While undoubtedly meningitis may and does thus arise, I think, in fact, many of the cases in which serious inflammation seems by all the symptoms we can appreciate to exist, the truth is that they are due to pressure within the tympanum, as in the cases hereinafter recorded.

While, then, we expect sometimes to meet with otitis media as a complication of diphtheria, scarlet fever, measles, etc., I think few have been accustomed to look upon pneumonia as one of the diseases likely to be attended with this complication. It is a complication quite frequently overlooked be-

cause the symptoms are referred to the brain instead of the tympanum, and the importance of it, too, is quite as often not appreciated. It is a complication recognized by various writers, it is true, and is a well-understood pathologic condition; but the references to it are so meager, and until recently the importance of the subject has failed of recognition except from the aural surgeons, who seldom see such cases as we are about to discuss, that it has not received the attention at the hands of the general practitioner that it should. That it occurs frequently, and that the symptoms induced by it are referred to some other cause, I am quite confident, and, in fact, as the cases here referred to will show, the symptoms of this complication are sometimes so misleading that unless we are very much on our guard it is an easy matter to suppose them to be due to some other pathologic condition.

The significance of otitis media has not only relation to the usefulness of a very important organ, the ear, but it has very profound bearing upon the life of the individual as well. Many a life has been jeopardized, and no doubt many a one also has been lost through a want of thorough appreciation of the importance of otitis media or a failure to discover its existence, or an inability to manage it properly when discovered. The effusion in the tympanum may, by pressure, so seriously interfere with the cerebral circulation as to cause death, or the pus there confined may burrow through the mastoid sinuses, producing mastoid disease, with all its serious consequences, or through the interstices in the thin lamella of bone lining the cavity, thus producing a true purulent meningitis. The danger to life being escaped, the danger to hearing still remains, and later-coming deafness is quite frequently traceable thereto. It is a question worth considering how many unfortunates might have been spared this calamity by early recognition and proper treatment of this complication of the various diseases that are its primary causes.

That otitis media may follow or complicate pneumonia, especially in children, as well as the exanthematous diseases, in which it is such a familiar accompaniment, it is the object of this paper to show. It is not at all the intention to consider this subject from the point of view of the aural surgeon, but to review the question of middle-ear disease as it should be recognized and treated by the general practitioner.

¹ Read before the West Branch Medical Association at Williamsport, Pa., January 29, 1895.

The following extract from the *Hospitals Tidende*, 1893, Nos. 18 and 20, reproduced in the *Therapeutic Gazette* of May 15, 1894, first called my attention to this matter and served to illuminate a case I then had under observation, and which had completely deceived myself and two consultants, our diagnosis being meningitis complicating pneumonia, whereas the lesion producing the cerebral disturbance proved subsequently to have been otitis media. Since then I have had two other cases, all of which shall be presently reported:

"A valuable communication is made by Rasch, of Copenhagen, of the results of sixty-one autopsies of children under two years of age. In but five cases was the tympanum normal, suppurative disease being present on one or both sides in forty-six, equalling seventy-five per cent., and catarrhal lesions in eight cases, or fourteen per cent. Nearly all of the children who had died of broncho-pneumonia showed otitis, and in thirty-three of the forty-three in which the secretion was rigidly examined the pneumococcus was present. Not a few of these children had shown symptoms leading to a diagnosis of meningitis, which was found absent on section, and the tympanic inflammation had been generally overlooked. Perforation of the drum-head was found but four times, and even when this occurs the condition is too frequently unrecognized or slighted.

"This is only a confirmation of what has been long urged and repeatedly demonstrated by otologists, but they too often are merely regarded as magnifying their office unreasonably. Numbers of such cases recover from the general disorder without recognition of the middle-ear disease, and give no evidence for a time that resolution has not been complete there; but the otologist finds a really normal drum-head a rarity, and must frequently trace later-coming deafness to such beginnings. This is the more deplorable when measures as simple as hot douching of the ear will often suffice to cure the disease in its early controllable stage; and a careful use of the Politzer inflation has at times instantly dispelled the symptoms of meningeal involvement, which delay might have made organic and irremediable."

The following cases, which came under my observation in the spring or early summer of the past year, illustrate the points brought out in the foregoing extract quite forcibly, and especially show how easy it is to mistake these cases for cases of meningitis, and also show, what is especially referred to in the extract, the close relation between the primary disease, pneumonia, and the complication otitis media:

CASE I.—A son of F. C. L., aged six years, had an attack of measles of mild character three weeks before the present illness and had apparently fully recovered. Just previously to this illness he had been exposed somewhat to cold and damp and had become overheated while preparing for some school-exercises at the end of the term. The first intimation that the parents had that the child was not well was that he seemed to have "taken a bad cold," and when I saw him on the second day of his illness he was suffering from bronchitis, though his most distressing symptoms were abdominal; indeed, there seemed to

be a general catarrhal condition of the mucous membranes. There was considerable pain in the stomach and bowels, very decided tympanites, diarrhea, and occasional vomiting. The tongue was moist and covered with a white fur. The temperature was but slightly elevated and the pulse only 100. There were cough and some expectoration of tenacious, stringy mucus and subcrepitant râles, but no pain in the chest, and the percussion-note was clear over all parts of both lungs.

On the third day the abdominal symptoms were very decidedly ameliorated; the pain in the stomach and bowels ceased; the tympanites subsided; and the diarrhea stopped altogether, though there was still occasional vomiting. The temperature now rose to 102°, the cough became more distressing, and pain in the chest was complained of. Percussion detected a small area of dullness in the middle lobe of the right lung. On the fourth day the boy became quite restless, dull, and stupid, sleeping most of the time, throwing his hands about, and crying out as though in pain; he now complained of headache and rolled his head in the pillow, and, though in semi-coma most of the time, could be aroused by considerable effort, and would answer questions in monosyllables. Hearing was noticed to be quite dull in both ears, but much more markedly so in the left. When aroused, vision did not seem to be lost entirely, though it was evidently an effort for the child to concentrate his vision on any object. The pupils responded slowly to light and were sometimes dilated and again contracted, though never unequally contracted or dilated. The stupor became more and more pronounced as did also the deafness, so that it was hard to rouse the patient at all. His pulse became very rapid and feeble, though it was very difficult, indeed, to take it satisfactorily on account of his extreme restlessness; he was never quiet a minute, though apparently unconscious of his surroundings. The temperature, when it could be taken, remained at 101° or 102°, though I think if it could have been more accurately taken it would have shown a higher range.

At the end of a week sensation was so blunted that the cornea could be touched without any notice of it by the patient. During the time these cerebral symptoms were developing the chest-symptoms were subsiding. The pneumonia, which had extended to the greater part of the lobe affected, had commenced to clear, but on account of the head-symptoms the prognosis was exceedingly unfavorable. The boy was at this time seen in consultation by Drs. Armstrong and Lichtenthaler, and the diagnosis previously made of meningitis complicating broncho-pneumonia was confirmed, without a question of doubt arising in the minds of either consultant or myself. At this period of the disease I found it necessary to be absent from home for a few days and Dr. Lichtenthaler continued in care of the case for me, with a most serious prognosis from all who had seen the patient. Dr. Lichtenthaler saw him the next day and gives me the following history of the case during the time the child was under his observation. He saw the case

again on the following evening, but could detect no signs of improvement. On the next morning he found the boy decidedly comatose, lying flat on his back, with limbs outstretched, all delirium and irritability gone; the stupor was so profound that he could place his finger on the cornea over the pupil without eliciting any sign of consciousness whatever; urine was voided unconsciously in the bed; the temperature and pulse were about the same as they had been during the preceding days. He called to see the patient again in the evening, fully expecting to find him dead, but on entering the house he found everything changed. The patient, having almost entirely recovered from his condition of coma, would reply "yes" and "no" in answer to questions, and the doctor was informed by the mother of the child that "one ear had broken during the afternoon," and that in a short time the family had noticed the change for the better. The child had asked for milk, had also expressed a desire to urinate, and did so after being placed on the chamber; and had asked for bread and butter. The doctor removed considerable pus from the ear, and was informed that there had been quite a free discharge. From this time on there was continuous and certain progress toward recovery, with gradual decline in temperature and pulse-rate and restoration to consciousness, so that when I resumed charge of the case the temperature was normal, the mind clear, the memory good, and the deafness about gone.

CASE II.—A son of W. H. S., aged five years, had also had an attack of measles some two weeks previous to the present illness. When first taken sick his symptoms were those of a general catarrhal fever. The temperature the first two days ranged from 101° to 102° . The child had severe headache, vomiting, and diarrhea, more or less stupor, extreme restlessness, and some delirium. There was quite a troublesome cough also, which percussion and auscultation revealed to be bronchitic. On the second day the vomiting and diarrhea ceased, but the temperature rose in the evening to 103° , and quite perceptible deafness was manifest, which was, at that time, supposed to be due to quinin, which the patient had been taking. On the next morning (third day) the temperature rose to 104° , and percussion detected dullness over a small area of the right lung. The child slept most of the time and the deafness was extreme. He was restless and delirious for several days more, when the lung cleared up, the temperature fell, and deafness disappeared and he returned to full consciousness. There was no discharge from the ears in this case. A diagnosis was made quite early in the disease of the middle-ear disease complicating pneumonia, and this, in the light of subsequent events, I believe to have been correct.

CASE III occurred in a son of Charles S., aged six years. This case is but a repetition of the other two, and I do not think it will be necessary therefore to go into details in regard to it, as was done in the first case, in order to bring out the points to

be considered. There is one difference, however, between Case I and Case III on the one hand and Case II on the other, viz.: In Case II there was no discharge from the ears, whereas in the other two there was, and in both of the former cases there was a rapid subsidence of the symptoms, with the appearance of the discharge, showing very plainly the relation of the brain-symptoms to the pus contained in the tympanum. In both cases the discharge was purulent, and I am very sorry a microscopic examination was not made to determine the presence or absence of pneumococci. In this case, as in the others, there had been an attack of measles, which had been apparently fully recovered from, and in some two or three weeks was followed by an attack of catarrhal pneumonia. Accompanying the pneumonia were the decided symptoms of brain-disturbance as though due to meningeal inflammation—the restlessness, headache, coma, fever, vomiting, and, in addition, the marked and very decided deafness. The coma in this case was, if possible, deeper than in either of the others, though there was not so much restlessness or delirium as in the first case. The bowels were constipated throughout and vomiting continued at intervals for four or five days. The deafness was so profound that it was almost impossible to make the child hear the loudest shout or to gain any intelligent recognition from him. This, however, was as much due to the deep coma as to the defect of hearing. The pupils responded to light, but sluggishly. The temperature on several occasions became quite high, on more than one occasion reaching 105.5° , and necessitating the administration of an antipyretic. The pulse was rapid throughout the illness. These very pronounced symptoms continued for eight days, at the end of which time there was a discharge from one ear, with a marked and rapid change for the better. By this time the pneumonic lung had cleared up, and after the discharge the temperature fell and the child rapidly convalesced.

A *résumé* of these cases develops several points quite forcibly, and I think they are of sufficient interest and importance to hold our attention for a few moments.

In the first place, we see the indisputable connection of the two conditions, the pneumonia and the otitis media, with its accompanying symptoms, so closely resembling meningeal inflammation that a differential diagnosis becomes an exceedingly difficult matter. Another point for consideration is the fact that while we have all the symptoms of meningeal inflammation, viz., the headache, vomiting, delirium, restlessness, fever, coma, and deafness, there is, in reality, no inflammatory action in the cerebral meninges at all. A member of the profession, whose opinion I value very highly, writes me concerning this point that "nearly everyone is agreed at the present time that in such cases it is simply an illustration of the fact that the infectious disease is influencing the brain as well as the lung;"

but if that means that the infectious disease, pneumonia, is producing a meningitis as well as a pneumonitis, I think the cases here reported, as well as the autopsies referred to in the extract already quoted, contradict that idea, for it will be remembered, in two of the cases referred to, the symptoms of meningitis subsided immediately on the relief of pressure by the liberation of the pus from the tympanic cavity, and in the other case the same thing, or practically the same thing, occurred probably by discharge through the Eustachian tube. It would seem quite evident, therefore, that in these cases the condition is not due to inflammation of the meninges, but is the result of pressure within the tympanic cavity upon the sinuses and veins, and that it is relieved instantly when the pressure is removed.

When this condition occurs as a complication of pneumonia or the various other diseases with which it is commonly associated, but especially pneumonia, it is quite an easy matter to overlook it, or rather to refer it to an entirely different pathologic condition; for, in the first place, it is a condition that it is acknowledged is not easy of diagnosis, and, secondly, the primary disease is very likely to obscure the lesion. In a recent paper by Dr. S. MacCuen Smith¹ attention is quite forcibly called to the facts just mentioned. This writer says that in the last three years he has seen six children die of middle-ear disease which was unrecognized until a few hours before death. "Four of the patients," he says, "were thought to be suffering from 'brain-fever' and two from 'meningitis,' and when we recall the perfect picture of meningeal inflammation presented by these cases we can readily understand how without the most careful examination of the case such errors in diagnosis occur." Gowers says in his work on *Nervous Diseases* that the pressure on the bloodvessels and sinuses in the tympanic cavity due to inflammatory action in the middle ear gives rise to symptoms that so closely resemble those of meningitis that the one condition is often mistaken for the other, and the diagnosis is almost, if not quite, impossible. Referring to the cases just reported, this difficulty of diagnosis is quite plainly illustrated, and the general appearance of the child, together with many minor details in each case, makes the difficulty still greater at the bedside.

There are some clinical features which assist at least in an approximate diagnosis. The pupils may be sometimes contracted and again dilated, but they are not unequally contracted or dilated. The deafness is likely to precede the coma, whereas the deafness, or rather the insensibility to sounds, in meningitis is in direct proportion to the depth of

the stupor. I have never seen in these cases any retraction of the abdominal muscles such as occurs in meningitis, and while the bowels are usually constipated and there is considerable vomiting, still these symptoms are not so pronounced nor so constant as in meningitis. The pain that is complained of is usually referred to the ear or the side of the head, whereas in meningitis the patient simply complains of headache without referring to any special location of the pain. I have never seen the *tache rouge* in these cases, though I must confess I have also often seen it absent in cases of meningitis. An examination of the ear with a head-mirror and speculum is the most important and probably also the only certain method of making a diagnosis, and this assists very materially not only in the diagnosis, but also in the treatment of the case, which, as already said, is a very important matter.

Pathologically considered, the tympanic cavity is well arranged to act as a trap for any micro-organisms that may be in circulation in the respiratory apparatus or that may be forced into it by efforts at coughing, having easy communication with the throat by the Eustachian tube and being closed at its outer extremity by the tympanic membrane.

If we recall the anatomic structure of the cavity, we can readily see how inflammatory action in its interior may quite easily extend to the meninges of the brain or by pressure produce most serious and alarming symptoms. Many authoritative writers have called attention to the fact that most serious consequences result from pressure on the veins and sinuses of the meninges due to infiltration and exudation into the tympanic cavity, and when we remember that the cavity is only separated from the brain by a thin lamella of bone perforated by bloodvessels and frequently containing apertures, and that posteriorly there is a veritable and almost direct communication with the cranial cavity through the mastoid sinuses, it is not surprising that serious brain-disturbance, and even a fatal brain-lesion, should result from middle-ear disease. Indeed, it is surprising that serious results do not more frequently follow.

Inflammation of the middle ear occurs most frequently as a complication or sequel of some other disease, and is the result, as we say, of extension of inflammation, or perhaps, to speak more scientifically, of migration of bacteria from the throat or other outer parts of the respiratory system through the Eustachian tube to the tympanic cavity. This is quite a familiar complication of the exanthematous diseases, and quite recently I have seen several cases of tuberculosis in which the bacteria were probably forced into the middle ear, with consequent suppuration and purulent otorrhea, with loss of hearing—the same result, though due to different

¹ New York Medical Journal, July 21, 1894.

micro-organisms, that happened in the cases already referred to. It used to be a quite common complication of scarlet fever, and many a child suffered with an offensive discharge from the ear that made him obnoxious to himself and to others and finally lost the hearing of the ear or ears affected, if indeed he did not lose his life, before the discharge occurred, through this complication. I am glad to say that I seldom now see this complication of scarlet fever. Since the elucidation of the bacterial origin of these diseases and the adoption of the only rational method of treating the throat through antiseptics, I seldom see an invasion of the Eustachian tube by pathogenic bacteria. In all such cases it is my habit to pay most careful antiseptic attention to the throat, and I must say that as a consequence the absence of offensive otorrhea or deafness as a sequel has amply repaid for all the necessary trouble, which really amounts to nothing. As it is known that there may be invasion by the pathogenic bacteria of the tympanic cavity in pneumonia, tuberculosis, etc., as well as the exanthematous diseases, it seems to me it would be a wise precaution to use antiseptic throat-washes in these cases also, in order to prevent what might become a serious complication.

The prognosis in such cases as have been here reported and briefly discussed depends a good deal on the plan of treatment or on the success of the efforts of Nature at liberating the exudate confined within the tympanic cavity. If the pus is discharged, either by perforation of the drum or through the Eustachian tube, relief is speedy and recovery quite sure, unless this fortunate circumstance is too long delayed. If the pus is not liberated, death may result from the pressure on the cerebral vessels, or there may be burrowing of the pus, resulting in meningitis and death. Hot douching of the ear, inflations through the Eustachian tube, and at the proper time the liberation of pus by surgical means, are recommended as the proper method of treatment. The anticipation of the efforts of Nature by the surgical liberation of the pus gives much better prospects of recovery and much less danger of permanent loss of hearing.

PULMONARY TUBERCULOSIS—ITS EARLY DIAGNOSIS.¹

BY EDWARD F. WELLS, M.D.,
OF CHICAGO.

THE great practical importance of this subject must be recognized if only superficial consideration is given to a series of propositions the applicability of which will be conceded by every experienced physician:

a. Pulmonary tuberculosis is an affection that may be recognized in its early stages. The symptoms are clear, suggestive, distinctive; and detection of the signs amounts to a practical demonstration of its existence. If any doubts are present, they are speedily resolved by time and the development of the disease.

b. Diagnostic failures are not due to any inherent difficulties. On the contrary, they are usually due to remediable faults upon the part of the physician, as, for example, to a hazy conception of the clinical picture of early tuberculosis of the lungs; to obtaining an incomplete history of the case; to superficial physical examinations or to lack of facility in manipulation or interpretation in this field; and, finally, to a peculiar mental bias, which renders him loath to acknowledge the presence of that which he dislikes to discover.

c. The prevalence of pulmonary tuberculosis has diminished and is declining, and it is reasonable to believe that the extension of the malady may be further restricted by early impressing upon every patient the importance of those preventive measures that are everywhere recognized as being efficient.

d. Recovery from pulmonary tuberculosis occurs in a very considerable proportion of cases, and medical management plays an important rôle in bringing about this very desirable result. That early treatment is influential in curing the disease and prolonging life will not be controverted by any one familiar with the subject.

e. Pulmonary tuberculosis necessarily entails upon its victims months and years of invalidism, with probably radical modifications of personal, business, domestic, and social relations; together with the certainty of death, in the end, in the large majority of cases. Simple justice demands that patients be early apprised of these facts.

The diagnosis is based upon the history and phenomena presented by the individual case compared with the total blended knowledge that the observer has gained from his own experience and the published observations and opinions of others. Inasmuch as the first is an ever-varying and the second an illimitable quantity, it is clear that the limits of this short paper will permit consideration only of a few of the many important points that may be classed as peculiarly diagnostic. In making selections it will be my aim to call particular attention to those that I have oftenest seen neglected.

Without argument it will be taken for granted "that pulmonary tuberculosis is due to the lodgment and subsequent growth in the lungs of the bacillus tuberculosis; that the entrance of this microscopic organism is usually effected through the inspired air, and that the atmosphere becomes contaminated from the dried and pulverized sputa of those consumptives who carelessly expectorate

¹ Read by title before the Detroit meeting of the Mississippi Valley Medical Association, Sept. 3-6, 1895.

upon the ground, floors, articles of clothing, etc. And further, that in countries where the malady is prevalent all persons are, because of the reprehensible custom of careless expectoration alluded to, constantly exposed to the germs of the disease, and that all do not become affected is due to the short life of the bacillus, especially when exposed to sunlight; the lack of a suitable soil for its development, and the inherent and acquired immunity of individuals. It is nevertheless true that local pulmonary conditions, and acquired, and, especially, inherited constitutional peculiarities render the individual extraordinarily susceptible or non-resistant to the disease, and it is these contingents which furnish the great army of phthisical victims." It must be clear, from the foregoing statement of accepted facts, that a careful consideration of exposure, heredity, susceptibility, etc., is of the utmost importance in the study of doubtful cases.

Exposure is a phase of our subject that requires, and, no doubt, will well repay, further and elaborate investigation—statistical and experimental. Little is positively known—much is, probably correctly, surmised. We must say that the probabilities of a slight hacking cough being of tuberculous origin are increased if the patient is a resident of a densely populated community or is a member of a household in which there are cases of well-developed pulmonary tuberculosis, while they are lessened if the opportunities for inhaling the germs are meager, as, for example, in the resident of a sparsely settled community or the sailor returned from a long cruise.

Heredity is certainly of the utmost importance and demands the most careful inquiry in every case. Although it is probable that no one has seen a case of direct transmission of tuberculosis to the fetus, the reports of some observers to the contrary notwithstanding, yet it is well-nigh universally admitted that tuberculous patients transmit to their offspring a peculiar susceptibility to the disease, and the testimony of a great number of careful and creditable observers makes it certain that about one-half of all tuberculous patients belong to families in which other members have been similarly affected. That this inherited susceptibility is a most profound impression is attested by the demonstrable pertinacity with which it clings, generation after generation, to those families in which it has once obtained a foothold.

Susceptibility may be acquired in a variety of ways, some known, many unknown. Attention will only be called to the fact that the local pulmonary conditions attendant upon influenza, measles, bronchitis, and pleurisy render the patients more than ordinarily liable to tuberculosis.

In the early diagnosis of pulmonary tuberculosis a clear and full medical history is always of the

utmost importance, although obtaining this is often a very difficult feat. Patients are not prone to make wilful misstatements, but some of the most suggestive of the early symptoms seem to them insignificant and unworthy of mention, or they may have escaped notice altogether. However, careful and direct questioning, especially in the presence of a close associate, will usually bring forth a fairly clear and it may be a graphic account of the access and early symptoms.

If we refer to the great wealth of accumulated literature upon pulmonary tuberculosis, we shall find the most disappointing uncertainties as to the mode of access; and, usually, particular attention is directed to the alleged fact that the mode of access is very varied. This I believe to be erroneous, and, as the result of a considerable experience, especially in private practice, I am prepared to maintain the position that a remarkable uniformity exists in the earliest symptomatology in cases of pulmonary tuberculosis.

The earliest symptom is usually a slight and unobtrusive cough, but having peculiar characteristics. It is of the variety known as "hacking," but often, if not generally, consists of a single effort. It is likely to occur only after a change of posture or after a deep inspiration. Deep breathing may cause the cough, but if the deep inspiration is repeated the cough is not reproduced. It is an infrequent cough, and may not be heard a half-dozen times in twenty-four hours. It is unaccompanied by expectoration. This cough may continue for a week, or for a month, when a change comes over the scene. The cough becomes more frequent, and there are several "hacks" with each effort, especially on rising in the morning, and perhaps on retiring at night, and after eating. Occasionally there is expectoration of a little mucus, which may be streaked with pinkish blood. At this time the patient may feel languid, complain somewhat of headache, have an impaired appetite, with a coated tongue and a tendency to constipation, and be conscious of being in a febrile condition. This exacerbation will be of a few days' duration, and may be so slight as to attract but little or no attention, or it may be so marked as to require the services of a physician, but this is unusual. A small or moderate hemoptysis may occur at this stage, independently of the mildness or severity of the other symptoms. At the termination of this febrile attack there is usually a slight purulent or mucopurulent expectoration, although this may escape notice. Attacks similar to the one described, but each more pronounced than the preceding, are likely to recur at intervals of from four to six weeks, but after the first one or two the local and general manifestations will have assumed such characters as to leave no doubt of their nature.

Without considering further these general features we shall pass to the diagnostic value of the individual symptoms of early tuberculosis.

The cough, after one or two febrile exacerbations, usually becomes more frequent. It is not completed with a single effort; is more open; is provoked by changes in posture, sudden exertion, deep breathing, laughter, etc.; may often be quickly reproduced by deep inspiration; and is accompanied by more or less mucopurulent expectoration, which is most abundant and most purulent in the morning upon rising. At this stage rarely, but at a later period oftener, the cough may be paroxysmal and occasionally accompanied by the vomiting of food after a meal. A cough of this kind is highly suggestive. The hollow cough, with heavy nummular expectoration, distinctive to even the laity, needs no extended mention. It will be understood, also, that in every case the expectoration should be submitted to microscopic examination. The discovery of the bacillus tuberculosis must be considered conclusive evidence of the existence of the disease under consideration, but the inability to discover this organism, even when many specimens are examined, cannot, in the early stages, consistently lead to a positive opinion in the opposite direction.

Hoarseness is a not uncommon early symptom, and recurrent attacks, which are not due to other easily discoverable causes, are highly significant of pulmonary tuberculosis. The hoarseness to which I refer is not due to laryngeal tuberculosis; is transitory and recurrent; has recognizable characteristics that are peculiar, and occurs in a pretty large proportion of cases.

Hemoptysis is a symptom of the greatest diagnostic importance. It occurs in only a moderate proportion of the cases of early pulmonary tuberculosis, but it is very significant when it does appear. As a matter of fact, an hemoptysis preceded by a period of cough is, practically, pathognomonic of tubercles in the lungs. It is true that there may be spitting of blood from spongy gums, from hemorrhage from the posterior nares, throat, etc., but, clinically, these cases are easily properly classified. The hemoptysis may be small, moderate, or profuse; transitory, more or less persistent or recurrent; but it is usually small or moderate and solitary, or mildly persistent for several hours, although it is not infrequently recurrent. It is seldom very profuse, although it may be in rare cases so profuse and persistent as to destroy life. Although cough is almost always the initial symptom, and the patient may have had one, with slight expectoration, for several weeks or months, together with one or more febrile attacks, yet the fact remains that in a considerable number of cases hemoptysis is the first symptom that excites the alarm of patients and their friends and that leads to a consultation with the physician. In such

cases only the closest questioning will correct the error of observation.

Thoracic soreness and pain occur early in most cases of pulmonary tuberculosis. The pain may be a sharp, evanescent stitch, recurring at irregular intervals, with long periods of absence; it may be less acute and continuous for several hours or a day or two; or it may be a sense of soreness, noticeable with inspiration, especially deep inspiration, and it may be attended with tenderness upon pressure. The favorite location for these pains is the region round about a point midway between the nipple and the clavicle. They may be axillary, supraclavicular, suprascapular, or even basic, although the last is uncommon. The location is often indefinite, as is also the character, but this very indefiniteness in character and location is in itself a suspicious symptom.

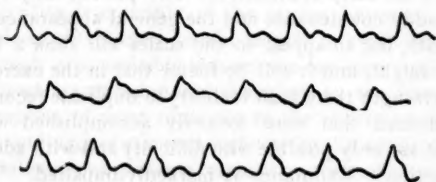
The early febrile attacks are usually accompanied by gastric and intestinal disturbances. The tongue is coated, the appetite is impaired, and the bowels are constipated. Excretion generally is deficient, and the condition is often classed as a bilious attack. Subsequently the appetite is likely to be erratic and somewhat impaired, while the powers of digestion and assimilation are diminished. In some rather infrequent cases there is present a veritable dyspepsia of tuberculosis, and in other rare cases there may be, in the early stages, no impairment whatever of the appetite, of digestion, or of the assimilative powers.

Nutrition, corporeal weight, strength, and endurance are early diminished. The patient may have a ruddy countenance and the general appearance of health, but an appeal to the scales will show a loss of weight, and it will be found that in the exercise of strength there is an inability to duplicate records, and feats that were formerly accomplished with ease are only possible with difficulty and with added exertion. Endurance is markedly impaired. The patient tires easily and unaccountably. This symptom is one that early attracts the patient's notice, although it may require pointed questioning to obtain the information.

The thermometry of early tuberculosis is deserving of very careful attention. Frequent observations of the corporeal temperature for several days will clear up many a doubtful case. During the febrile attacks to which I have referred the temperature usually ranges from normal to 100° F. in the morning to between 100° F. and 103° F. in the evening. At these times, however, more frequent observations should be made, and it will often be found that the highest temperature occurs in the late afternoon rather than in the evening. At other times the temperature is usually slightly elevated during the late afternoon and evening. In a patient with a slight cough the regular elevation of the

body-heat from one-half to one-and-one-half degrees is very significant. An evening elevation of temperature may occur in some other diseases, *e. g.*, in anemia, obscure suppuration, etc.; but these are usually readily eliminated from the diagnostic field. In some cases the patient may be free from fever in the interim between the exacerbations, but this is uncommon.

A study of the pulse will afford some of the earliest indications of the existence of pulmonary tuberculosis. From the start the characteristics of the pulse are changed from the normal. Usually the pulse is accelerated, and the rate is modified very little by position. The latter feature is very suggestive, and whenever the pulse-rate is found to be practically the same, whether the patient be lying, sitting, or standing, the most careful scrutiny is demanded. To the finger the pulse may be described as being "hurried," irrespective of its rate, although the rate is usually notably increased—ranging from 75 to 100 per minute. In some cases in the early stages the rate may not be perceptibly accelerated, and in others the frequency of the pulse may be very great, *e. g.*, 120, 140, or 160 per minute, but such cases are rare. It is, however, from sphygmographic tracings that we obtain the most valuable aid from the pulse in the diagnosis of early pulmonary tuberculosis. From this alone, in the great majority of cases, may be confidently predicated the presence or absence of tuberculosis in a doubtful case. Typical examples of tracings from cases of early tuberculosis are here introduced:



There are two classes of cases in which the question of differential diagnosis may arise in which the sphygmographic tracings afford no assistance. These are early typhoid fever and febrile attacks generally in some of those persons who are recognized as being hereditarily predisposed to pulmonary tuberculosis. These conclusions are derived from some studies in sphygmography upon which I am now engaged and which will soon be published.

The importance of a careful physical examination of the thorax needs no extended mention. The flattened chest will at once attract attention and be given its due weight in summing up the probabilities. It must be remembered, however, that although ill-formed, abnormal chests appear with frequency, yet well-shaped and symmetric thoraces are encountered in the majority of cases of tubercu-

losis. There will be usually found in the earliest stages a respiratory capacity below the normal, and a narrow range of the thoracic excursions, unless the patient has previously practised deep breathing. In many, if not in most cases, the respiratory movements at the upper portion of the chest, on one or both sides, are manifestly diminished. In practising percussion preference should be given to the method known as "stethoscopic percussion," because in this manner the extent and degree of any consolidated patches of lung-tissue may be detected with greater certainty than by the ordinary method, and it is possible to detect and locate small areas that would otherwise remain undiscovered. During the febrile attacks more or less extensive areas of dulness may be found which did not previously exist, and these disappear with the decline of temperature. This is due, as is well known, to pulmonary inflammation in the vicinity of the tuberculous deposits, and is very characteristic. It will be borne in mind that any dulness at the apex is highly suggestive of pulmonary tuberculosis, but the converse does not hold good, as there may be present a deposit of tubercle with no perceptible impairment of the percussion-note. In practising auscultation it must be remembered that there is, normally, a difference in the respiratory sounds of the apices of the two lungs—those of the right being loudest and roughest. During the febrile exacerbations there will be found but little difficulty in detecting the abnormal sounds characteristic of early tuberculosis; but at other times much care, skill, and tact may be required in their recognition. It is scarcely possible to overestimate the diagnostic importance of localized crepitation, of rough or rasping inspiration below the clavicle, and of whistling or tubular expiration. Less distinctive, yet of suggestive significance, are the wavy infraclavicular inspiration and the weak respiratory sounds of the extreme apex.

In conclusion I will say: Satisfactory diagnoses in cases of early pulmonary tuberculosis are to be made only upon a broad base of practical knowledge. It must be apparent that it is impossible to compress within a short paper and a few minutes more than a modicum of that which many volumes cannot embody nor years attain. It is believed, however, that sufficient has been presented to prove that the early diagnosis of the affection under consideration presents no insurmountable difficulties, and that the exercise of a reasonable amount of care and skill, and in a few cases the lapse of a little time, will almost invariably lead to correct conclusions. In attaining these results no portion of our knowledge concerning pulmonary tuberculosis should be neglected, but particular attention may well be given the points mentioned, the most important of which are the following:

1. Preliminary history, including heredity, exposure, and susceptibility.

2. Medical history, including the mode of access and subsequent course.

3. Symptomatology, including the character and significance of the cough and expectoration; hoarseness; hemoptysis; pain and soreness; gastric disturbances; nutrition, weight, and strength; temperature; pulse and sphygmography; thoracic inspection and mensuration; percussion and auscultation; examination of sputum, etc.

34 WASHINGTON STREET.

GENU VALGUM; WITH OBSERVATIONS ON CORRECTIVE OSTEOTOMY.¹

BY SCHUYLER C. GRAVES, M.D.,

OF GRAND RAPIDS, MICH.;

CONSULTING SURGEON TO THE U. S. A. HOSPITAL AND SURGEON TO THE CHILDREN'S HOME.

WHEN the knee lies internal to a line drawn from the acetabulum to a point on the dorsum of the foot, midway between the malleoli, a condition of *genu valgum* or knock-knee is said to exist. It is only, however, to aggravated deviations from this rule that the term can be surgically, and hence properly, applied, because moderate degrees of the deformity are normal to the human creature; that is to say, the center of the knee will normally be found on the inside of the line just mentioned. This is due to the fact that the axis of the thigh, on account of the length of the transverse pelvic diameter, does not coincide with that of the leg, but intersects it at an external obtuse angle of large degree, thus throwing the knee to the inner side of the acetabulo-malleolar line. This state of affairs is much more pronounced in the female than in the male, because of the greater pelvic width in the former, thus rendering still less coincident the femoral and crural axes. Such divergence in axial trend must be harmonized by some mechanic factor at the point of articular contact, and this correction is brought about by an elongation of the internal femoral condyle, which is from one-quarter to one-half inch longer than its fellow.

Statistics show that *genu valgum*, in relation to general surgical diseases and malformations, bears the ratio of about one to twenty-four, and to its congener, *genu varum* or bowlegs, of a little more than one to two, bow-legs being observed a trifle less than twice as frequently as knock-knee. The deformity may be unilateral, bilateral, or mixed, being in the latter instance associated with bow-leg in the opposite member; and when bilateral it may present different degrees of variation in the two limbs.

¹ A paper read before the Northern Tri-State Medical Association, at Coldwater, Michigan, July 9, 1895.

Genu valgum has been noticed in the newborn; but it usually does not appear until the child commences to stand or to walk, and the cause is almost always rachitis. As stated by Young,¹ "Rickets softens the bones, weakens the muscles and ligaments, and the superincumbent weight of the body accomplishes the rest." Other elements enter into the etiology of this condition, such as inflammations, with or without trauma; displacing fractures; paralyzes, as the result of nutritional disturbances; the postural factor in occupations, etc., but the disease called rickets must always remain as the most frequent cause.

FIG. 1.

FIG. 2.



May 7, 1894.—Genu valgum.—August 7, 1894.

The pathology of *genu valgum* includes primary softening, with secondary hardening of the osseous structures; linear hypertrophy of the internal condyle, together with atrophy of the external; stretching and weakening of the internal lateral ligament, with corresponding contraction and condensation of its fellow, externally; muscular changes on account of position or disease, and greater or less rotation and antero-posterior curvature both above and below the joint.

The symptoms, signs, and hence the diagnosis of this deformity are readily recognized, the naked-eye appearances being amply sufficient. The following are a few points bearing upon this part of the subject: The feet are more or less widely separated and everted when the limbs are extended and the knees are in contact; there is impossibility of approximating the feet when the limbs are in the position just described, together with excessive lateral joint-mobility, disappearance of the deformity on flexion of the legs upon the flexed thighs, supposed

¹ Orthopedic Surgery, page 290.

to be due to lack of antero-posterior thickening of the internal condyle, etc.

In the matter of prognosis it has been stated by some writers that time is corrective; but I doubt if any well-authenticated case of formerly pronounced and latterly "out-grown" *genu valgum* can be exhibited. Recovery by the operation of time, that is, by natural growth and the action of better-toned muscles, except in the mildest types, is not to be expected. Deformity may not increase, certainly *will not* increase after the osseous eburnation that frequently follows rickets; but active mechanic interference must be instituted if we desire to do our patients any substantial good.

This brings us to the most important and, at the same time, the most interesting portion of this subject, the treatment. Naturally the matter falls under two heads, viz.: First, non-operative; second, operative. Under the first we note such manipulative factors as massage and pressure, the latter exerting its force in a direction, of course, away from the central axis of the body, while the extremities of the limb are fixed. This pressure can be applied either by the hand of the masseur or by properly constructed apparatus, to be worn indefinitely, but taken off when the patient is in bed.

This apparatus-treatment is, in my opinion, a relic of barbarism, and ought to be relegated to the companionship of its fellows in the dusty garret of surgical crudities. It may be possessed of some usefulness, though never necessary, while the bones are yet soft and more or less elastic; but after the advent of sclerosis its employment, in view of the better means obtainable, is, of course, absurd. It is a slow, clumsy, often ineffective, discouraging, and torturing method.

The way to correct a case of *genu valgum* to-day is to resort to either osteoclasis or aseptic osteotomy. By the former is meant the securing, through any well-directed force, of a simple fracture of the femur at or near the proper point. This method is inexact, and, although it furnishes the great desideratum of securing correction without the necessity of compound fracturing, has not been extensively adopted by operators. The *noli me tangere* in the surgery of the past is no longer the bugbear of the present, and when micro-organic life is not introduced into his wounds by the surgeon or by others—that is, in the absence of contact-infection, he may be certain of kindly results in his cutting-operations. I confess I am partial to osteotomy for the correction of curvatures of the long bones, and, through my experience, I have reason to be so.

Several excellent operations have been instituted within the past twenty years for the correction of *genu valgum* by osteotomy, although deliberate osteal sections for the same purpose were undertaken long ago, the first having been performed by Meyer, of

Würzburg, in 1851. The best of these operations are the following three: 1. Ogston's; 2. Macewen's; 3. MacCormac's.

The first consists in separating the internal condyle from the shaft of the bone by a vertical section, and, after sliding the condyle up the diaphysis a sufficient distance, fastening it there. This procedure, however well it may correct the deformity, is never justifiable, in view of the fact that the great knee-joint is unnecessarily entered; for other operative methods fully as efficacious avoid, and very justly, the penetration of this important articulation. Hence, the Ogston method will be discussed no further in this paper.

The remaining two operations, viz., the Macewen and the MacCormac, are the ones I propose considering. Although the former is the product of a mighty mind and is recommended to-day by almost, if not quite, all of the text-books as superior to the MacCormac, it is, in my opinion, inferior to the latter, or rather to the modified MacCormac, as I shall proceed to show.

In the Macewen operation the incision is made vertically on the *inner* aspect of the thigh, and the bone divided "at a point where the two following lines meet; one drawn transversely, a finger's breadth above the external condyle, and a longitudinal one drawn one-half an inch in front of the adductor magnus tendon." In the MacCormac operation the incision is made transversely on the *outer* aspect of the thigh at a point about two inches above the lower femoral epiphysis.

In an osteotomy for *genu valgum* on a boy of five that I performed a year ago the MacCormac operation with some original modifications was chosen. These modifications were the following: 1. A change of incision from the transverse to the vertical direction; and 2, an incomplete section of the bone, with the production of a "green-stick" fracture in the portion undivided.

First. The MacCormac incision is transverse, and can only be accounted for on the ground of permitting better vision during the procedure. A surgeon, in the first place, should see with his fingers, and, in the second place, he should make incisions that disturb to the least possible extent consistent with thorough work the normal anatomic relations of the structures through which he needs must pass. A transverse incision in this operation divides the fibers of the vastus externus; a vertical one simply separates them. Union after transverse section of striated muscle is practically never followed by restoration of purely muscular continuity. Fibrous tissue takes the place of the destroyed muscle-cells, and a plane of connective tissue subsequently appears at the site of the former incision, thus damaging, in direct proportion to the amount of connective tissue present, the contractility and hence

the usefulness of the muscle. It is needless to say that longitudinal separation of the muscle-fibers, when permissible, is better surgery than transverse section.

Second. In no text-book or operator's work have I seen advocated the securing of a "green-stick" fracture as a factor in the correction of *genu valgum* or *varum*. It is, of course, possible only in the young; but children form and will continue to form the great majority of cases for operation. "Green-stick" fracturing is impossible in the Macewen operation, because the *inner* portion of the femur is at once divided. In the MacCormac operation, however, the *outer* portion being the first to undergo division, the remainder, after gentle testing, may be subjected to pressure sufficient to fracture incompletely, and thus permit of deformity-correction without total loss of osseous continuity. This can generally be effected, though not always, and, as can readily be seen, is a great advantage over complete bony section. I at once noticed the value of the MacCormacsite in relation to this operative feature.

In the performance of these osteotomies, after placing the limb on a sand-bag, the desired section of the bone is readily accomplished by the free use of the mallet and chisel, and at the same time the correction is made and a plaster-cast applied over proper aseptic dressings, and allowed to remain for from two to three weeks without disturbance.

When one limb is deformed to a greater degree than its fellow, if the variation be not pronounced, a compensatory tilting of the pelvis will overcome the moderate difference in the length of the limbs caused by correction; but when this variation is considerable a sufficiently long, cylindric section of the femur in the limb that shows the greater deformity must be removed in order to render the limbs of equal length.

To the Macewen operation I find the following objections:

1. It has to be performed in the neighborhood of a greater number of important structures than is necessary, viz.: The internal saphenous vein and nerve, the anastomotica magna artery, and to a certain extent the internal, upward prolongation of the synovial membrane lining the knee-joint, in regard to which Gray¹ states: "On each side of the patella the synovial membrane extends beneath the aponeurosis of the vasti muscles, and more especially beneath that of the vastus internus." 2. The line of section is, for obvious reasons, too close to the epiphysis. 3. It necessitates the cutting of a wider expanse of bone than is desirable. 4. It precludes the possibility of an advantageous "green-stick" fracturing.

The following points of superiority attach to the modified operation of MacCormac:

1. The incision *separates* the muscular fasciculi, and does not appreciably *divide* them. (This condition of affairs I know obtains in the Macewen operation, and, therefore, the latter is not inferior to the former in this respect, but the innovation is an improvement on the old MacCormac.)

2. The only important structure to be avoided, with the exception of the popliteal artery, which, by the way, should be borne in mind during *any* osteotomy for the remedy of this deformity, is the peroneal nerve lying in close proximity to the tendon of the biceps; but this chord, by virtue of the trend of the incision, is in very little danger.

3. The operation permits of partial, external bone-section with a maintenance of internal, osseous continuity.

In conclusion allow me to recapitulate the modifications of the MacCormac operation that seem to possess merit:

1. The employment of the longitudinal instead of the transverse incision. 2. The aim to secure correction of the deformity without total loss of osseous continuity, through the agency of the so-called "green-stick" fracture.

The former modification is an exemplar of neater and hence better surgery, and the latter not only renders the MacCormac method the preferable one in the majority of instances, but also, by greater ease of manipulation and by greater certainty of good results, changes the dictum of many authorities as to the treatment of cases in which such procedure is possible, viz., the children afflicted with this distressing deformity; for, while heretofore it has seemed best to defer operations on the young and to try the effect of corrective apparatus, it can now be stated as a recognized fact that in these same boys and girls, who have all the time imaginable at their disposal, and in whom center all the possibilities associated with the training and molding of structures actively engaged in the processes of evolution, is found every indication for the performance of one of the most humane as well as one of the most brilliant operations in the realm of modern aseptic surgery.

VULVOVAGINAL ANUS, WITH REPORT OF A CASE.¹

BY LEONARD FREEMAN, B.S., M.D.,

OF DENVER, COL.;

PROFESSOR OF THE PRINCIPLES OF SURGERY AND SURGICAL PATHOLOGY,
GROSS MEDICAL COLLEGE; PATHOLOGIST TO THE
COUNTY HOSPITAL, DENVER.

CONGENITAL malformations of the rectum and anus are of rare occurrence, but they are of so much importance to the future welfare of an infant, both physically and mentally, that they deserve earnest attention. Operative interference is often success-

¹ Read before the Golden Belt Medical Society of Kansas, July, 1895.

¹ Eighth edition, page 329.

ful, and should be attempted in every case, no matter how small the chance of affording relief may be; for in the bad cases it is better that the little patient should perish in an attempt to remove the affliction than to carry so objectionable a deformity through life; and, besides, many cases would rapidly succumb if not promptly operated upon.

Malformations of the rectum and anus may be divided into four principal kinds:

1. *Atresia ani*, in which the anus alone may be absent, or the entire lower portion of the bowel as far as the upper border of the internal sphincter. Sometimes a small fistulous opening remains, which is usually situated further forward in the perineum than normal. A dimple often marks the spot where the anus should exist, and the fibers of the external sphincter may be present beneath the skin.

2. *Atresia ani et intestini recti*, in which the colon ends in a blind pouch at the level of the last lumbar vertebra, or on the left side at the upper border of the sacrum.

3. *Atresia recti*, in which the rectum ends at some portion of its course without communicating with the anal portion of the bowel. The latter, however, is present, projecting upward from the anus like a short glove-finger. In rare cases the rectal pouch may open into the vagina.

4. *Cloaca congenita*, in which the rectal pouch, lying generally in the hollow of the sacrum, opens into some portion of the genital or urinary tract. The opening is often small, and may lead into the rectum through a narrow canal. In the male sex the opening may be into the lower portion of the bladder, or into any part of the urethra; while in females it is often into the vagina, generally into the vulva near the posterior commissure (vulvovaginal anus). Very rarely the rectum communicates with the uterus. When the opening is in the upper part of the vagina the latter is often double, the feces passing through but one of the divisions.

The ileum or jejunum may end in a *cul-de-sac*, or present more or less of a stricture at any point; or the small intestine may open at the navel or in the inguinal region. Dinsmore observed a case in which the opening was on the shoulder.

In order properly to understand these various malformations it is necessary to study the method of formation of the rectum in the fetus. The rectal and anal portions of the bowel are not formed in a continuous tube, as one would naturally imagine, but exist as separate structures, which gradually approach each other and finally unite about the fourth week. In other words, the rectum ends at first in a blind pouch, while the anal portion begins in a puckering of the surface, which slowly deepens, as though the skin were being pushed inward by the end of a finger, until it unites with the rectal pouch above.

Another important point is that at this stage of development the genital and urinary tracts open into the rectal pouch, so that the anus becomes a cloacal opening such as exists in birds. Just how it occurs we do not know, but certain disturbances in intra-uterine life may check the proper development of the parts at any period. The anal portion of the bowel may not form at all, or may fail to unite with the rectal portion above; or an abnormal opening of the rectum into one of the urinary or sexual organs may result.

These accidents of development seem to appear more frequently in certain districts and in certain families. Wurtzer mentions a family in which out of ten children three were afflicted with occlusion of the rectum, while König observed the deformity in a father and two sons. When such an occlusion exists, the infant usually promptly dies unless relief is afforded by operation, but this is not always so. Bartholin saw a man forty-two years old in whom the feces were periodically evacuated through the mouth, the intestine having doubled on itself and opened near the upper end of the esophagus. Baux observed a girl of fourteen years who evacuated the contents of the bowel through her mouth every two or three days. A similar case was seen by Denys.

In the present paper I shall consider the vulvovaginal anus only. Approximately between 60 and 100 cases have been reported. The opening is always in the posterior wall and generally low down near the posterior commissure. When it is high up there is often a double vagina, the bowel communicating with only one side. The opening may be small or large, and it is usually so guarded by a sphincter muscle that fecal matter is perfectly retained, although incontinence sometimes exists. The deformity is often not at all incompatible with longevity or even with a certain amount of physical comfort. Morgagni mentions a Jewess thus afflicted who lived to be over one-hundred years of age. Ricord cites a case in a woman of twenty-two years whose husband during the course of three years discovered nothing abnormal in her condition. Dwight reports a case in a woman of thirty-two years, Deutsch one in a woman of twenty-nine years, and Tuck one in a woman of twenty-six years.

The bowel nearly always runs parallel with the perineum almost to the coccyx before it turns upward, and there is often a depression of the skin where the anus ought to be. A normal anus may also be present, and the vulvovaginal opening may be closed by a membrane or by a valvular fold of mucous membrane, so that no fecal matter enters the vagina. In fact, cases have been recorded in which the deformity has not been observed until after marriage, when the opening has been accidentally rendered patulous. In one instance the wife believed

herself to have been injured by undue violence in coitus, and medico-legal complications resulted.

When the right operation is properly performed the best results are often obtained; otherwise more harm may be done than good. Curling has collected 100 cases of malformation of the rectum, including eleven cases of vulvovaginal anus. Operative interference was successful in ten of the latter, only one resulting fatally. But, in spite of a successful operation as such, failure may sometimes result from other congenital complications. It is not necessary, and often not desirable, to operate at once upon cases of vulvovaginal anus, if the opening is sufficiently large to permit defecation. Very young babies may not withstand an operation as well as somewhat older children, and the condition is often such that delay is not at all dangerous.

Some operators prefer to open the bowel in the anal region near the coccyx by a simple longitudinal perineal incision, suturing the cut edges of the gut to the skin, and closing the vaginal opening either at once or subsequently. This is not a commendable method. As is well known, it is not always an easy matter to close a rectovaginal fistula, and, in addition, the proper anal sphincters may not be retained.

Another method of operation is to split the entire perineum and bowel from the vaginal opening back to the normal position of the anus, throwing the lower portion of the vagina and the anus into one, and leaving the repair of the vagina and perineum to a future operation. But this is a bungling procedure at the best, which may lead to prolapse of the vagina or uterus, in addition to a long period of treatment and an imperfect functional result.

Taking all things into consideration, the method of Rizzoli, which I employed in the case to be described, gives the best results, enabling the operator to restore at once the normal condition of the parts at a single operation. The internal sphincter, with its nervous mechanism, is retained, so that the anus can immediately perform its proper function, only temporary incontinence, or perhaps none at all, resulting.

The case I desire to report in this connection was that of a twelve-months-old baby, well developed and well nourished, having an anal opening in the posterior wall of the vagina just within the vulva. The opening was about the size of a wheat-straw, and was so provided with a sphincter that no incontinence of feces was present. A small dimple marked the spot where the normal anus should exist. There was no evident hymen.

Under chloroform-anesthesia a longitudinal incision was made in the perineum from near the tip of the coccyx almost to the posterior vulval commissure. A sound was inserted into the bowel through the vaginal anus to serve as a guide, and the perineal incision was gradually deepened until the rectum

was reached. This was then loosened in its entire circumference from the surrounding tissues, including the posterior vaginal wall, by means of blunt instruments, and careful snipping with a pair of blunt-pointed scissors. The end of the bowel was then cut out from the posterior wall of the vagina with a pair of fine scissors, leaving an opening slightly larger than the original anus. This opening was at once closed by fine sutures. The entire bowel, including the vaginal anus, which I slightly enlarged, was then swung backward through the perineal incision to its normal position in front of the coccyx, and the edges of its orifice united by a number of silk sutures to the cut edges of the skin. A few deep stitches served to unite the perineum in front, thus restoring the parts to the condition in which they appear in a normal child. The anus, however, was left rather larger than natural in order to allow for subsequent contraction, although the method of suturing the mucosa to the skin prevents this in great measure.

The sutures were removed on the eighth day, and the child was sent home on the tenth. The anus functionated perfectly from the first, no incontinence being present at any time. This was owing to the fact that the internal sphincter, with its nervous connections, had been preserved.

I heard from the case four months after the operation. The bowel was then performing its functions in a normal and satisfactory manner.

CLINICAL MEMORANDA.

UNUSUAL APPEARANCE OF A CIRCINATE RINGWORM.

By J. ABBOTT CANTRELL, M.D.,

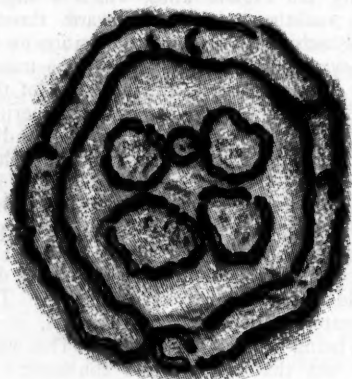
OF PHILADELPHIA;

PROFESSOR OF DISEASES OF THE SKIN IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE; DERMATOLOGIST TO THE PHILADELPHIA HOSPITAL AND TO THE SOUTHERN DISPENSARY.

THE appearances witnessed in a case of ordinary superficial ringworm that presented itself at my clinical service at the Philadelphia Polyclinic were so unusual that a brief description and illustration may not be without interest. The case in question occurred in a girl about ten years of age, and the lesion was situated upon the right forearm slightly below the elbow on its outer aspect. The outer and larger ring of the eruption was found to have a diameter of one-and-three-quarters inches and to be perfectly round, having a number of vesicles around the borders of the lesion. This portion of the diseased area did not present anything unusual, but it was the condition that was witnessed in the center of this ring that was the most interesting part of the appearance. Within this larger ring were found five smaller lesions which were arranged in the following manner: They occupied the center of the larger lesion, and ranged from one-eighth to one-half of an inch in diameter. Although these latter lesions were separate in themselves, they were closely packed together and to some extent resembled the appearances witnessed in a clover-leaf. The outer or larger lesion was somewhat older than those included within its circle, the smaller

ones being only of two days' duration, while the older one was of about two weeks' existence.

The accompanying drawing with the microscopic report is the work of my assistant, Dr. Jay F. Schamberg. The scales were immersed in a 20 per cent. solution of potassic hydroxid, and examined with a Zeiss one-twelfth oil-immersion lens. The scales from the larger or outer ring showed abundant mycelia of varying size—some short and broad, others long and thread-like.



There seemed to be rapid fructification, as evidenced by the prolific arborescent bifurcation. Spores were almost entirely absent. The scales from the inner circles showed much less abundant fungus. The mycelia were for the greater part long and narrow.

In looking over the literature of the subject of this form of vegetable parasitic affection I am unable to find any reference to a similar arrangement of the lesions, but it has been my fortune to have recorded¹ recently another unusual arrangement in which the patch was made up of two rings that were concentric and not connected with the one with the other.

315 SOUTH EIGHTEENTH STREET.

ANTECEDENT ORCHITIS IN A CASE OF MUMPS.

BY W. F. MARTIN, M.D.,
OF COLORADO SPRINGS, COL.

ABOUT three years ago a man of thirty-two years, the father of one child, three years of age, presented himself at my office, and complained of pain and tenderness in the left testicle. This, on examination, was found distinctly swollen and tender, the swelling being almost entirely confined to the testicle proper. There was also slight feverishness. There was no urethral discharge, and no evidence or history of any local cause to account for the condition; further, the man himself denied sexual intercourse with any one for the preceding two weeks, his wife having had an unusually prolonged menstruation, from which she was just recovering. The treatment advised was local rest for the parts and the free application of iodoform-ointment. The next day I was requested to see the man at his house and found him in bed, with a temperature of nearly 104°, a quickened pulse, and

marked prostration. The testicle was still further enlarged and very tender, being fully twice the size of the opposite organ. On the left side of his face (the same side as the inflamed testicle), involving the parotid region, was a pronounced swelling, unmistakably the parotid gland itself. The patient complained of some discomfort due to the tension caused by the swelling, and of some trouble in mastication, but otherwise his attention was concentrated on his swollen testicle.

The succeeding history is, briefly, that of a steady and gradual decline of the testicular and the parotid swellings and of the fever, so that in a week the patient was entirely well. Three months later the affected testicle was found atrophied and soft, being about one-half its normal size.

This then seems without question to have been a case of so-called metastatic testicular inflammation of mumps, preceding the appearance of the parotid manifestation, and, if any deductions may be made from a single case, it would seem that such an antecedent involvement of the testicle would presage a severe attack of parotiditis.

In the literature at my disposal I have failed to note any reference to inflammation of the testicle preceding inflammation of the parotid glands in mumps. This history, however, proves that such a course of events may take place.

EXPERIMENTAL NOTE.

SOME EXPERIMENTS RELATING TO THE TOXIC NATURE OF THE URINE OF DIPHThERIC PATIENTS.

BY CLARENCE O. AREY, C.E., M.D.,

OF CLEVELAND, OHIO;
PATHOLOGICAL LABORATORY, WESTERN RESERVE UNIVERSITY.

THE following experiments were made during the past winter with the object of determining what action the urine (and its products) of diphtheric patients would have upon animals, and inferring as far as possible from this the nature of these products. The experiments are far from complete, but they were continued throughout the winter and were carried as far as my resources would allow.

On October 26, 1894, I received, through the courtesy of Dr. C. C. True, a specimen of urine from Miss F., a school-teacher, who had contracted a disease, clinically diphtheria, from two of her pupils. A bacteriologic diagnosis failed to disclose the presence of Klebs-Loeffler bacilli, and before a second examination could be made the young lady died. As it was very difficult to obtain such urine as I wanted, I proceeded with this urine and made Experiments A, B, C, D, E, mentioned further on in this article.

This urine was examined with the following results:

Specific gravity, 1028; reaction, acid; color, between a *café olé* and a salmon, being very cloudy. There was an excess of uric acid. Albumin was present in large quantities. No sugar was found. The urine was sterile both by microscopic examination and by culture-methods.

After examination the urine was treated as follows: To one part was added 0.02 per cent. carbolic acid. This is designated No. I. Another portion was slowly sterilized; that is, it was subjected to a temperature of 60° C. for one hour each day for five consecutive days. This

¹ Journal of Cutaneous and Genito-urinary Diseases, August, 1895, p. 343.

treatment cleared up the color described, leaving a clear urine, with a slight white deposit at the bottom of the flask. Upon standing several days after sterilization the original color and cloudiness returned.

Thirty parts of this urine were added to sixty parts of agar-agar. The mixture was rendered amphoteric, and after hardening in a slant after sterilization, it was inoculated with a pure culture of diphtheria-bacilli. There was no growth in the tube.

This urine was kept for several weeks without opening, when carbolic acid was added to the extent of 0.5 per cent. The urine was then filtered and the filtrate designated *I a*. This filtrate yielded a precipitate when heated, when absolute alcohol was added, and when a saturated salt-solution was added.

A portion of the filtrate *I a* was precipitated by the addition of salt to saturation, the precipitate filtered out and the resulting filtrate designated *I b*. Another portion of the filtrate *I a* was precipitated by the addition of absolute alcohol and filtered, the filtrate being designated as *I c*.

Another portion of the filtrate *I a* was precipitated first with salt and filtered, and this filtrate precipitated with absolute alcohol and filtered. This last filtrate was designated as *I d*.

The following experiments were made upon animals. All inoculations with these products and the products of other urines were made subcutaneously with the hypodermic needle:

Experiment A. An old guinea-pig was given 1 c.cm. of the urine No. I that had carbolic acid added to it to the extent of 0.02 per cent. The weight of this pig was not taken at the time of inoculation. The animal died twelve days later, the post-mortem examination showing the typical lesions of experimental diphtheria.

Experiment B. A guinea-pig weighing 330 grams was inoculated with 0.75 c.cm. of *I a*. Four days later this same pig was given 1 c.cm. of *I a*. The animal died thirteen days after the original inoculation. The typical lesions of experimental diphtheria were found after death.

Experiment C. A guinea-pig weighing 340 grams was inoculated with 1 c.cm. of *I b*. This animal died ten days later, and the autopsy showed the typical lesions of experimental diphtheria.

Experiment D. A guinea-pig weighing 305 grams was inoculated with 0.9 c.cm. of *I c*. This inoculation was repeated three days later, 1 c.cm. of the fluid being used. The animal died seventeen days after the original inoculation, having lost 80 grams in weight. The post-mortem examination showed that the animal died of pneumonia. Besides the lesions of the lungs, however, there was an excess of serous exudate in the peritoneal cavity, with slight hyperemia of the tissues.

Experiment E. A guinea-pig weighing 290 grams was inoculated with 1 c.cm. of *I d*. This injection was repeated two days later. The animal died seventeen days after the first inoculation, having lost 30 grams in weight. The post-mortem examination showed an intussusception of the bowels, with much inflammation surrounding it.

In the foregoing experiments two of the deaths were accidental; the remaining three showed lesions identical with those of experimental diphtheria. The question arose, Could not these lesions be produced by the toxic

properties of the urine itself, from the urea and other elements contained? To answer this question the remaining experiments were conducted with products taken from the urine and held in aqueous suspension in the manner to be described; and as a check-experiment a guinea-pig weighing about 300 grams was inoculated with 1 c.cm. of the urine of a patient free from diphtheria. The inoculation had no perceptible effect upon the animal. In all of the following experiments the diphtheria-bacillus was found in the throats of the patients.

On December 22, 1894, Dr. William T. Howard, Jr., brought me a bottle of urine from a patient sick with diphtheria, who had previously been treated with the antitoxin. This is designated as urine No. II. Examination of this with the microscope showed no bacteria; cultures from it, however, showed the presence of microorganisms, but there were none of the Klebs-Loeffler variety. A piece of camphor about 1 c.cm. in diameter was added to about 100 c.cm. of this urine. Examination one week later with the microscope showed a multitude of organisms. Carbolic acid was then added to the extent of 0.5 per cent.

This urine was treated as follows: 94 c.cm. were taken and filtered; the residue was suspended in 11.5 c.cm. of distilled water, to which sufficient carbolic acid was added to make 0.5 per cent. This suspension was designated *II a*. All filtering was done through heavy filter-paper. In this case the residue in suspension contained the bodies of many dead bacteria.

Experiment F. A guinea-pig weighing 170 grams was injected with 1 c.cm. of *II a*. Forty-six days later this animal weighed 240 grams, and was then again injected with 1 c.cm. of *II a*. This injection was followed by the minimum lethal dose of a freshly tested diphtheria-toxin. This toxin had had its minimum lethal dose determined five days previously. The animal was alive one month later, when the laboratory closed for the summer.

Experiment G. A guinea-pig weighing 360 grams was injected with 1 c.cm. of *II a*, followed on the opposite side of the body by the minimum lethal dose of diphtheria-toxin. This animal died four days later from anthrax contracted from an infected cage.

On December 31, 1894, Dr. Miller, of the Ohio State Board of Health, brought me a bottle of urine from a child, two years old, suffering from diphtheria. The urine was obtained on the sixth day of the disease. The specific gravity was 1022, the reaction acid. Albumin and uric acid were present. Petrie plates made from this urine showed four small colonies, none of them being diphtheric. The case had been treated with the antitoxin of diphtheria.

On January 9, 1895, Dr. Hopkins, the Health-Officer of Ashtabula, Ohio, brought me a bottle of urine from a young lady who had been suffering from diphtheria, but had been convalescent for five days when the urine was obtained. No antitoxin had been used in this case. The specific gravity was 1022, the reaction neutral. Albumin was present in large quantities, but there was no sugar. Cultures showed a few organisms, but no diphtheria-bacilli. This urine was treated as follows: One-half of the urine passed in twenty-four hours was filtered, and the residue was suspended in 37.5 c.cm. of distilled water, to which 0.5 per cent. of carbolic acid was added.

This residue was examined under the microscope, and contained mostly an amorphous sediment, with some mucin and some small epithelial cells. This is designated as IV *a*.

The filtrate was rendered alkaline with sodium hydroxid, which precipitated some of the phosphates. These phosphates were washed off the filter with distilled water to which 0.5 carbolic acid had been added. The filtrate from this last had sodium chlorid added to saturation, causing precipitation. This precipitate was suspended in water in the manner already detailed. To the filtrate from this last, one-third of its volume of absolute alcohol was added, causing a crystalline precipitate in twenty-four hours. The crystals were like the phosphates when examined with the microscope, except that the surfaces had a peculiar feathery appearance. The crystals were suspended in 50 c.cm. of water, when they became amorphous. A portion of the suspension was tested with ammonium molybdate, and yielded the reaction for phosphorus. This last suspension is designated IV *b*.

The filtrate from this last precipitation was tested for albumin, and yielded a heavy deposit.

Experiment H. A guinea-pig was inoculated with 1 c.cm. of IV *b*. The animal was not weighed until eight days after inoculation, when its weight was 375 grams. Thirteen days later than this its weight was 405 grams. At this time the injection of 1 c.cm. of IV *b* was repeated. The animal died fifty-four days after the original inoculation, weighing 310 grams at death. A post-mortem examination showed inflammation of the inguinal glands and of the suprarenal capsules. The heart was much dilated. There was no excess of fluid in the serous cavities.

Experiment I. A guinea-pig was inoculated with 1 c.cm. of IV *a*. Five days afterward it weighed 285 grams; fifty-three days later 310 grams. The animal was now injected with 1 c.cm. of IV *a*, followed by the minimum lethal dose of the diphtheria-toxin already mentioned. This experiment was made five days after the test of the toxin. Sixteen days after this last inoculation the animal weighed 325 grams.

Experiment J. A guinea-pig weighing 240 grams was injected with 1 c.cm. of IV *a*, followed on the opposite side of the body by the minimum lethal dose of the same toxin used in the other experiments. This experiment was made twenty-six days after the toxin was tested. The animal suffered no inconvenience from the injections.

Another bottle of urine was brought me from Ashtabula. This was treated in the same way as No. II, the residue from 40 c.cm. of urine being suspended in 17 c.cm. of distilled water, to which carbolic acid was added to the extent of 0.5 per cent. This suspension is designated V *a*.

Experiment K. A guinea-pig weighing 215 grams was inoculated with 1 c.cm. of V *a*. This animal died forty-one days later, weighing 235 grams. The autopsy showed inflammation of the inguinal glands. The injections in all experiments were made uniformly in the inguinal region. There was an excess of serum in the peritoneal cavity. The right suprarenal capsule was inflamed and perhaps the left one also. The other organs were normal.

The diphtheria-toxin used in all of these cases was

the same. Its strength was determined on four different guinea-pigs before being used in these experiments. Some six weeks later this toxin was found to have lost its virulence, thus invalidating experiments that were not made with it immediately after its strength was tested.

SUMMARY. A noticeable point is that none of the urine examined was found to contain bacilli of diphtheria. The experiments from A to E, inclusive, showed toxemia. From the experiments from F to K, inclusive, the following deductions can be made:

Experiment F would tend to show either that the urinary product II *a* was a mild toxin and protected the animal against a fatal dose of diphtheria-toxin after sufficient time had elapsed for immunity to be acquired, or that this product was an antitoxin that protected against the fatal dose of diphtheria-toxin when given either before or at the same time as the diphtheria-toxin.

Experiment G was uncertain in its results.

Experiment H seems to show that the second dose of IV *b* was given before the animal had recovered from the effects of the first inoculation, and that the animal died of slow poisoning, IV *b* being a toxin.

Experiment I shows the same results as F, thus indicating that IV *a* was either a toxin or an antitoxin.

Experiment J would show, if the diphtheria-toxin had remained virulent, that IV *a* was an antitoxin, IV *a* being inoculated at the same time as a fatal dose of diphtheria-toxin.

Experiment K would show slow poisoning, with a gain in weight. As the stock of toxin in the laboratory had failed, leaving some of the experiments in doubt, I sent some of the suspension IV *a* to Dr. J. H. Wright, of the Sears Laboratory of the Harvard Medical School, to see if he found any antitoxic properties in it. The following is his report:

"The material in the small bottle (IV *a*) has been tested with negative results, no antitoxic power being shown. The test was as follows:

"Guinea-pig No. I, weight 640 grams, received subcutaneously 1 c.cm. of your fluid, and immediately afterward $\frac{1}{10}$ c.cm. of diphtheria-toxin, also subcutaneously. Death followed about the fifth day, with the characteristic lesions of toxin-poisoning, identical with those of experimental diphtheria.

"Guinea-pig No. II, whose weight was 640 grams, received subcutaneously 1 c.cm. of your fluid, and immediately afterward $\frac{1}{10}$ c.cm. of toxin, also subcutaneously. Death followed in about four days, with the characteristic lesions of toxin-poisoning, as in the case of pig No. I.

"The toxin used was tested a few days before on a pig of 520 grams' weight, death following in about four days with the characteristic lesions. It is apparent, therefore, that the material submitted by you has no neutralizing effect upon the toxin of diphtheria."

These experiments of Dr. Wright's, coupled with my own, would tend to show that all the products used were toxins; those in suspension being of a milder character than those used in the Experiments A, B, C, D, and E, which contained all the elements of the urine except the residue precipitated out in each case; the albumins contained in the urine in these first five experiments being probably the most toxic agents. The products used after Experiment E contained practically no

albumin, and were not uniformly fatal, as were the experiments preceding E. In the experiment in which non-diphtheric urine was used no evil effects were produced, showing that the constituents contained in one c.cm. of such urine were not toxic.

A review of these experiments brings the following questions to mind: To what extent would it be possible to use these milder toxic products of the urine in cases of contagious disease in conferring immunity to such diseases? If possible, how could the necessary dose be ascertained? Cannot such a method be applied to diseases in which the exciting cause is not now known? Thus, in a disease like pertussis, in which the toxemia is not marked, might not an increase of the toxin stimulate the body-cells to greater reaction and a consequent more rapid development of the neutralizing material that produces the ultimate immunity to the disease?

Could a child that had been exposed to scarlet fever be protected by the injection of a mild urine-toxin whose toxic strength had been ascertained?

In conclusion, I have to thank Dr. William T. Howard, Jr., for many suggestions during the course of the work, and for the help of his assistants when necessary.

MEDICAL PROGRESS.

Cycling and Heart-disease.—As the result of a considerable observation extending over a period of eighteen years, BENJAMIN WARD RICHARDSON (*Asclepiad*, vol. xi, No. 43, p. 225) thus summarizes his conclusions as to the influence of cycling on the heart: Cycling, when carried on with moderation, may, in so far as the healthy heart is concerned, be permitted or even recommended. It is not necessary to exclude cycling in every case of heart-disease. It may even be useful in certain instances in which the action of the heart is feeble, and in which signs of fatty degeneration are found; as increased muscular exercise often improves the condition of muscle, and of no muscle more than the heart itself. As the action of cycling tells directly upon the motion of the heart, the effect it produces upon this organ is phenomenally and unexpectedly great in regard to the work it gets out of it. The ultimate effect of severe cycling is to increase the size of the heart and to render it irritable and hypersensitive to motion, the cycling acting upon it like a stimulant. The overdevelopment of the heart under the continual overaction, and extreme overaction, affects, in turn, the arterial resilience, modifies the natural blood-pressure, and favors degenerative structural change in the organs of the body generally. In persons of timid and nervous natures, "neurotics," the fear incidental to cycling, especially in crowded thoroughfares, is often creative of palpitation and disturbance of the heart, and ought to be taken into account in preventive advice. In advising patients on the subject of cycling it is often more important to consider the peripheral than the central condition of the circulation. Enfeebled or worn-out arteries, that is to say, are more endangered than the feeble heart, and, when connected with a heart that is overactive, are seats of danger. This same remark would, of course, apply to cases in which there is local or arterial injury, as in aneurism. Venous enlargement seems rather to be benefited than injured by

cycling, and conditions marked by sluggish circulation through veins are often greatly relieved by the exercise. There are three sets of acts that are most injurious in cycling: (a) Straining to climb hills and meet headwinds. (b) Excessive fatigue. (c) The process of exciting the heart and wearing it out sooner by alcoholic stimulants, to the omission of light, frequently repeated, and judiciously selected foods.

The Maternal and the Fetal Blood at Birth.—As the result of a series of clinical observations, ELDER and HUTCHINSON (*Edinburgh Medical Journal*, August, 1895, p. 105) have found that the blood in the newly born child is relatively richer in red corpuscles than that of the adult by from 350,000 to 500,000 per c.cm. For a short time after the birth (up to about two days) the red corpuscles seem to increase in number. This is probably due to the fact that the total volume of blood is less, from the fluid lost from the body during this time being in excess of that absorbed. Thus concentration of the blood is produced. After the second day or so the red corpuscles gradually decrease. The number of red corpuscles varies much more than in adults, probably because of greater variations in the total volume of the blood. At birth there are always present a considerable number of nucleated red corpuscles. They vary, however, in number in different cases. About the sixth month of intrauterine life the number of nucleated red cells is very much greater than at birth. They probably decrease in number during the later months of pregnancy, and altogether disappear from the blood a few days after birth. The blood of the newly born child is relatively much richer in hemoglobin than that of the adult. The mother at parturition is anemic. In any individual case the blood of the mother is considerably poorer in red corpuscles per c.mm. than that of her child, and it is still more deficient in hemoglobin. Both the blood of the mother and that of the child contain a larger number of white corpuscles than normal adult blood. The blood of the mother may be quite as rich in white corpuscles as that of the child. The blood of the child contains a distinctly larger proportion of lymphocytes and a distinctly smaller proportion of neutrophile leukocytes than the blood of the adult; the number of eosinophile cells seems to be slightly deficient. At the sixth month this excess of lymphocytes is probably even more marked than at birth; these probably decrease during the latter months of pregnancy. After parturition the number of white corpuscles in the blood of the mother (at least when she suckles her child) decreases markedly in a few days.

Alcoholic Disease of the Heart.—FISHER (*Bristol Medico-Chirurgical Journal*, vol. xiii, No. 48, p. 81) devotes an interesting communication to the discussion of alcoholic disease of the heart. He points out the relative frequency with which cardiac hypertrophy is found at post-mortem examination in the absence of the ordinary causes of that condition, such as valvular disease, arterial sclerosis, and granular kidney. In many of these cases investigation will disclose a history of alcoholism. Clinically, cases of this kind are likely to present shortness of breath on exercise and cyanosis, with palpitation of the heart and precordial pain. The face is often congested, and edema develops in time. The cardiac impulse is diffuse, feeble,

and ill-defined. The area of cardiac percussion-dulness is increased, or it may be obscured by emphysema of the lungs. Auscultatory variations may also be present, such as duplication of one or other sound, and valvular murmurs may be audible. The disorder may result in sudden death. The treatment of alcoholic disease of the heart differs little from that of other forms of cardiac insufficiency, and includes rest in bed, with a withdrawal of the causative stimulant. Exceptionally, however, in an emergency, alcohol will have to be used. Some authorities, on the other hand, maintain that rest in bed should, if possible, be avoided, as it is believed that the circulation is thereby hampered rather than aided, as muscular action and comparative deep respiratory movements no longer aid in propelling the blood onward. From this point of view, also, digitalis is considered harmful, and strychnin nitrate valuable, with the addition of musk, castoreum, and valerian. In these cases also systematic bathing and exercise are considered useful.

Retraction of the Lower Chest Posteriorly as a Sign of Chronic Pericarditis.—BROADBENT (*Lancet*, No. 3752, p. 200) calls attention to a hitherto unpublished physical sign in the diagnosis of chronic pericarditis. This consists in a visible retraction, synchronous with the cardiac systole, of the left back, in the region of the eleventh and twelfth ribs, with sometimes, also, similar retraction of less degree upon the right side. Four cases are reported, all of which presented a definite history of pericarditis, and three, also, other conditions suggesting an adherent pericardium. It is explained that the only means of causing the retraction referred to upon both sides seemed to be the diaphragm, which if pulled upon would have more effect upon the floating eleventh and twelfth ribs than on the other more fixed ones. In cases of large heart with adherent pericardium there is a considerable area of the ventricles closely adherent to the central tendon of the diaphragm, and the powerful contraction of the hypertrophied heart must give a decided tug to this structure. That it should affect the ribs more often on the left side would be expected, from the adhesion being mainly to the left of the middle line. The liver also, which is often large in these cases, may restrain the movement on the right.

Thrombosis and Rupture of the Heart in an Infant.—EDRIDGE-GREEN (*British Medical Journal*, No. 1796, p. 1202) has reported the case of a boy, nine-and-a-half months old, who died without apparent cause. He was one of twins, and had been delicate and subject to convulsions from birth. On the day of his death he was seated on his grandmother's lap, when he was seized with a fit and died in three minutes. The fit was said to be different from those that had preceded it, and the child had appeared quite well previously. On post-mortem examination the pericardium was found distended with fluid blood, and the right ventricle presented a rupture one-third of an inch in length. This was gaping and started at about the middle of the ventricle, at its junction with the ventricular septum. On opening the right ventricle a loose, white thrombus was found in the cavity. It was one inch long, one-third of an inch wide, and one-quarter of an inch thick. Be-

tween the columnæ carneæ of the right ventricle were situated two small thrombi. The walls of the right ventricle were stretched, but appeared normal in other respects. The remainder of the heart and the other organs were normal.

Facial Paralysis with Unilateral Lacrymation.—FRANCKE (*Deutsche medicinische Wochenschrift*, 1895, No. 33, p. 532) has reported a case that lends support to the belief that a part of the nervous supply of the lacrymal gland is received through the facial nerve. The patient, a woman, was seized with vertigo that became so pronounced as to compel her to go to bed. At the same time a rumbling and roaring in the head developed, together with left-sided headache. Further, a considerable degree of impairment of hearing was present at first. Some eight days later complete paralysis of the muscles in the distribution of the left facial nerve developed and hearing was entirely lost. No derangement of function in the distribution of the fifth nerve could be discovered. The left eye was suffused with tears from defective action of the eyelids. Emotion induced lacrymation upon the right side, but not upon the left. The sense of smell was impaired so that reflex lacrymation could not be induced.

Paulocardia is the designation given by RIESMAN (*Philadelphia Polyclinic*, vol. iv, No. 36, p. 363) to the subjective sensation of intermission or stopping of the heart sometimes observed in cases of gastric neurassthenia. In some instances this phenomenon is obviously due to pressure of the distended stomach against the heart through the diaphragm. In other instances it is probably reflex, the afferent pathway being through the gastric branches of the vagus. Further, toxic agents circulating in the blood can by direct action on the proper centers or nerves give rise to the condition.

THERAPEUTIC NOTES.

For Acne Vulgaris.—

R.—Camphoræ		
Acid. salicylic.	}	āā gr. ivss—gr. vijss.
Saponis medicin.	.	gr. xv.
Zinci oxidi	.	ʒss.
Sulphur. præcip.	.	ʒijss.
Olei physeteris	.	ʒijj.—M.

Fiat unguentum.

Signe.—Apply topically at night.

BOECK.—*Monatsh. f. prakt. Derm.*, No. 5.

For Whooping-cough.—

Take—Bromoform	.	40 drops.
Rectified spirit	.	4 fluidrams.
Distilled water	.	1 fluidounce.
Syrup of tolu, sufficient to make		3 fluidounces.
		Mix.

Dose: 1 fluidounce in water, every three hours.

CARPENTER.—*Phila. Polyclinic*, No. 37.

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SATURDAY, SEPTEMBER 21, 1895.

THE REPORT OF THE PHILADELPHIA BUREAU OF HEALTH FOR 1894.

THE annual report of the Bureau of Health of the city of Philadelphia for the year 1894 has just appeared, and, like the previous reports of this important bureau, is a volume of considerable size. Of the 700 printed pages, however, nearly 300 could be dispensed with, as they contain a detailed record of interments for each month in the year, which could readily be embodied in a summary of four or five pages.

The report of the President of the Board, Dr. William H. Ford, states that while no epidemic occurred during the year there were more cases of small-pox than in any year since 1888—126 cases, with 13 deaths. Diphtheria maintained its virulence, the deathrate being considerably higher during the last three years than for any years previously. Scarlet fever, typhoid fever, and pulmonary tuberculosis show a lower deathrate from year to year. The deathrate of the city, excluding the stillborn, was 19.90 per 1000. The deathrate of children under five years of age was 7.4 per 1000 of the whole population, forming 37 per cent. of all the deaths.

The birthrate, exclusive of the stillborn, was 25.63 per 1000. The number of births registered still

falls considerably below the actual number born. In 1890 it was estimated that at least 10,000 births were not recorded. Chicago reported in 1894 a birthrate of 38.7 per 1000, or 60,600 births in a population of 1,567,727. Philadelphia has 31,226 registered births in a population of 1,139,457. If the birthrate were equal to that of Chicago, 13,000 births would remain unregistered. Of the births, 2.15 per cent. are recorded as illegitimate, but no accurate returns on this subject are attempted.

The new features introduced during the year were the insistence on either private or official disinfection of apartments in which deaths from pulmonary tuberculosis had occurred (the medical inspectors visiting all such premises); the establishment of a bacteriologic laboratory; the incineration of garbage; the collection of garbage in covered iron carts, so as to conceal odor and prevent dripping of the fluid contents; and the use of the tuberculin-test in the examination of all herds furnishing milk to the city. The amount of money expended by the Board for the year was \$213,674.

In the reports of the various divisions many interesting features are presented. It is unfortunate, however, that the numerous tables contained in the report are not computed on the basis of the population. The mere statement that a certain disease caused a greater number of deaths in one year than in another does not indicate that there has been an actual increase in the rate per thousand, the increase in population often being sufficient to account for the greater number of deaths. The mortality of children under five years of age ought to be computed on the number living in that age-group.

There seems to be no decrease in child-mortality; dividing the table on page 151 of the report into four quinquennial periods, we see that the mortality of children under five years was annually from 1875 to 1879, 7.7 per 1000 of the whole population; from 1880 to 1884, 8.0 per 1000; from 1885 to 1889, 7.8 per 1000; from 1890 to 1894, 7.7 per 1000.

Pulmonary tuberculosis is returning a smaller number of deaths from year to year. According to our own computation from the figures furnished in the report, the average number of deaths annually from this cause in the period from 1880 to 1884 was 32 per 10,000 of the population; from 1885 to 1889 was 28 per 10,000; from 1890 to 1894 was 25 per 10,000.

The deaths from pneumonia and heart-disease are

increasing in frequency, and tend to balance the decrease in such diseases as typhoid fever and tuberculosis; nor can the increased number of deaths from pneumonia be ascribed to a greater number of individuals of advanced age living who escaped death from other causes and finally succumbed to inflammation of the lungs. The number of persons dying of pneumonia between the ages of sixty and eighty years has not increased perceptibly in the last few years.

The report of Dr. Welch, of the Municipal Hospital, shows that 465 cases of diphtheria were admitted during the year, of which number 154 died (33.12 per cent.). There were 129 cases of scarlatina, with a mortality of 8.53 per cent.; and 87 cases of variola and varioloid, with a mortality of 11.49 per cent.

"All the children under five years old admitted with smallpox were unvaccinated," and the percentage of death among them was 28. Of 21 cases vaccinated in infancy, with good marks remaining, none died; of 13 cases vaccinated and showing poor scars, 2 died. Thus of the 34 vaccinated, 2 died, or 5.88 per cent.; of 44 unvaccinated, 8 died, or 18.13 per cent. Nine cases vaccinated after exposure recovered.

Dr. Taylor, in his report on sanitary inspection of the schools, makes some very pertinent remarks concerning the lack of supervision by the teachers over the health of the pupils, and recommends that principals be instructed to send all children presenting the slightest appearance of sickness to be medically examined, in order to arrest contagious diseases in their incipency. He finds that "the schools are large factors in the spread of contagious diseases." Most of the schools are improperly ventilated; and garments are thrown into dark closets or hung around the schoolroom.

The certificates of medical men, other than the duly appointed medical inspectors, stating that the prescribed period after a contagious sickness has passed, can, according to the new ruling of the Board of Health, no longer be accepted. This period is thirty days in all cases.

The Inspector of Milk has much to complain of. First, the influence of selfish milkdealers has operated to prevent proper legislation on the subject; and second, in instances in which legislation exists, Magistrates are liable to be influenced by the political friends of the accused. If a milkman does not know that his milk is adulterated, he is not liable to the

penalty. The Inspector wisely contends that "the milkman should be *required* to know that his supply of milk is free from added water, and that it contains its normal percentage of cream." About 300,000 quarts of milk are used every day in Philadelphia, and with the present number of inspectors it is possible to examine only about 1000 quarts a day, so that no efficient control can be said to exist. We understand that the inspectors only undertake investigations when suspicion has been directed against a dealer. Much difficulty is also experienced in enforcing cleanliness in city dairies, where distillery-swill and vegetable refuse are likely to be used as food.

The Inspector of Nuisances advises the more general use of public garbage-boxes constructed of steel. Such boxes should be plentifully supplied, especially in the more densely populated districts, and the people should be taught to use them, instead of using the street as a receptacle for garbage and waste paper. A few arrests on any street on which this nuisance exists would soon teach the residents a lesson in cleanliness that they seem to refuse to learn in any other way.

The small streets are being rapidly provided with better pavements, but unfortunately many of the newer alleys in the upper portion of the city are paved with Belgian block instead of with asphaltum. Brick or Belgian block paving allows the drainage to soak into the ground and weeds and slime to form upon the surface. Much is yet needed in improved pavements, and the underdrainage of all premises ought to be proceeded with as rapidly as possible; the only entrance to many court-properties is through a narrow alley, where the surface-drainage obliges one to wade through the refuse water.

Privy-wells and cesspools to the number of 2226 were abandoned during the year; but the number in use in the thickly settled districts is still great, and no abatement in the removal of these nuisances should be tolerated.

On page 64 of the report, the Coroner furnishes a table of inquests, from which it appears that 140 suicides and 31 homicides occurred during the year. The street passenger-railways disposed of 67 persons, the trolleys being responsible for 43 deaths of this number. The steam-roads killed 169 individuals. Eighty-four deaths occurred from drowning.

The Health-bureau of the city of Philadelphia is a branch of the Department of Public Safety.

It consists of the Board of Health, composed of five members (who serve without remuneration), a health-officer and the port-physician. Its various divisions are that of Vital Statistics, managed by a chief clerk, nine assistants, and two collectors; that of Contagious Diseases, superintended by a chief medical inspector and fifteen assistants, all doctors of medicine; the Nuisance Division, with a chief and twenty-two assistants; the Division of House-drainage, with a chief and twelve assistants; that of Milk-inspection, with a chief and nine assistants; the Division of Bacteriology, with a chief and two assistants and a chemist. The Municipal Hospital and twenty-three vaccine physicians are also under the control of this department.

The Philadelphia Hospital and the district charity physicians, however, are under the supervision of the Department of Charities and Correction and have no connection with the Health-department. The Coroner's office is likewise separate and distinct. We see no good reason why the Health-bureau should not include also the City Hospital and all that pertains thereto. The Almshouse could readily be divorced from the hospital and placed under separate management, and the separation would be advantageous in more ways than one.

While the Coroner in his official capacity deals largely with legal matters, the office is in reality a medicolegal one, and it would be an advantage if it were filled by one possessing both the qualities of a jurist and those of a physician. Agitation looking to reform in this direction has for some time been going on in New York. Massachusetts in 1877 abolished the office of Coroner and has a medical examiner instead, the legal work being in the hands of the judges of the courts.

Upon the Department of Health of a large city devolve many and varied duties. The service has grown gradually to huge proportions, and the power lodged in the hands of the department is almost absolute. Buildings must be constructed in conformity with its sanitary rules; certain lines of trade must be carried on according to its directions; houses must be maintained in a specified condition, and must be repaired in accordance with its instructions; when sickness occurs the department's directions must be complied with; burials must take place in accordance with its rules; births and marriages must be recorded on its books; food for consumption must bear the stamp of its approval; even private property is under control of the health-authorities,

and can be destroyed at their will. We do not in any way wish to contend that these things are not all proper. If the health of a community is to be protected and disease is to be prevented, the power to enforce necessary regulations must be properly centralized, at least until all individuals will voluntarily obey the laws. But how far is this power to extend, and who shall exercise it? If prevention of disease is the province of a board of health, shall such a board stop short of anything to attain its purpose? Instead of a merely regulating body, a sanitary police as it were, shall it not itself undertake to produce the conditions that are necessary to the maintenance of health?

To illustrate, shall it simply order the destruction of unsanitary hovels, but shall it not also secure the construction of model dwellings for the poor, as the municipality of Glasgow has done and the municipality of London contemplates doing? Shall it have its own model dairies for supplying suitable milk for children at a nominal price? Shall it operate summer sanitariums and "country-week" farms, or at least control them? Such a policy has been urged in European cities, and is not out of harmony with American institutions. The duties that some of our health-boards now assume are of a similar nature, such as bacteriologic and chemic examinations; disinfection of dwellings and personal apparel, the management of hospitals, and the manufacture of antitoxins and vaccines.

Those who see in such an extension of power an unwarranted infringement upon private rights and privileges are loudly opposed to it. On the other hand, those who are desirous of governmental control of all the means of production and distribution welcome each step in this direction.

If a State is founded for the purpose of promoting the general welfare of its citizens and their posterity, any measure that has for its purpose the prevention of disease has a reason for existence and execution.

When the great mass of people learn to recognize the need for the execution of health-laws they will practise them without compulsion, and laws will not be considered restrictive. They will feel it as much a duty to quarantine the sick of their families until the danger is past as they now consider it a duty to educate their children. Who knows but perhaps expectoration on the public highways will some day be regarded as much an offence as urinating in public is now.

If health-rules are carefully considered before

they become operative, if the public is taken into confidence and educated to understand the aims and purposes of laws, and if physicians will consider themselves as the expounders and teachers of, and will advise obedience to, such health-ordinances, not only will the work of the Health-department be made easier, but the healthfulness of cities will also be greatly increased.

CONTINENCE AND HEALTH.

THE Medical Faculty of the University of Christiana, in Norway, is reported to have replied to an inquiry addressed to it in relation to continence, that "The recent declaration made by different persons that a chaste life and continence are injurious to health is, according to our view, wholly false. We know of no disease or of any weakness which can be said to be the result of a perfectly pure, chaste life."

We are perfectly aware that there are some physicians who, whatever their private doubt may be about the unwholesomeness of continence, do not hesitate to recommend to some of their patients immoral sexual indulgence. We have always suspected that they do this not because they believe in the injurious effects of continence, but rather in a spirit of compromise with vice, and from a selfish motive to preserve their prestige with a class of patients to whom immorality is more desirable than a strict, personal hygiene. It is a specious argument, which is met without opposition, that sexual gratification is a physiologic necessity. It is a prescription that popularizes the physician because it gratifies the patient. It is a dose that requires no sugar-coating for some, because the moral gustatory sense of the patient is blunted to that degree that he does not perceive the sophism that distinguishes between a law of Nature and a law of ethics.

We do not stop here to point out in detail that the laws of ethics are only the higher laws of Nature—not opposing the latter, but confirming and regulating them. "Nature" is only the universal group of phenomena, of which man's moral sense is the highest, the most complex, and the most highly differentiated phenomenon. From even the purely biologic standpoint it is easy, nay necessary, to affirm that ethics is the physiologic activity of the highest evolved product in organic nature—the human conscience. We leave this aspect of the subject, in order to discuss briefly its practical bearings, which at least appeal to the intelligence of those who per-

sist in regarding this grave question from a lower plane.

In the first place, we may affirm emphatically that sexual immorality is the prime and persistent cause of the prevalence of venereal diseases. This statement is not weakened by the fact that venereal diseases may be acquired and transmitted innocently. This very fact, appalling in itself, is only an additional argument against the vice that primarily breeds and disseminates them. We believe that any general prophylaxis against gonorrhea and syphilis will always be counteracted by the prevalence of prostitution. If we could imagine prostitution abolished, we could imagine the prompt eradication of these scourges. Without its abolition we cannot. Those who believe that its legal control (in itself a sociologic chimera) can prevent the dissemination of infection occupy an unscientific ground, which is not assumed in reference to any other infectious disease. The first necessity of prophylaxis against pathogenic organisms is to abolish the conditions under which they thrive. The favorable conditions for gonorrhea and syphilis are prostitution. Does any rational man believe that the mucous surfaces of the urethra and vagina of libertines and courtesans can be so sterilized and kept sterile as to eradicate the gonococcus? When we combat diphtheria, do we send our children to consort with patients in whom there is the slightest suspicion of an infected pharynx? Moreover, is it the function of a member of the medical profession to sterilize vagina (with indifferent prospects of success) in order that they may be exposed to prompt reinfection? Is this according to the best bacteriologic methods of the day?

We dwell in no Utopia. We do not expect to see prostitution abolished, and therefore we expect to have to combat the ravages of secret diseases all our professional days. Therefore we desire that no other man should dwell in any Utopia of his own making, because his Utopia, we are convinced, is only a Tartarus. From our point of view the physician who recommends sexual immorality is untrue not only to the ethics but to the science of medicine. He aids by his advice in the dissemination of the germs of disease. He is blind to the teachings of bacteriology; he is indifferent to the claims of a profession whose highest aim and endeavor are the prevention and eradication of disease.

Secondly, from this standpoint it would make no difference even though continence were somewhat

of a trial to health—of which there is but little scientific evidence. But even if it were, the obscure neurotic and emotional disturbances that are laid at the door of continence are as nothing compared with the effects of the venereal diseases.

But is there any evidence that continence is injurious to health? In discussing this question in a dispassionate and purely scientific spirit we do not care to say dogmatically that there is none. We can safely admit that there is perhaps evidence that some strictly functional disturbances, confined largely to the psychic sphere, do occasionally manifest themselves, in persons of a certain temperament, as a result of a conscientious adherence to continence. It may even be admitted that hysteria must claim as among its causes emotional perturbations in which obscurely continence may act as a factor. But this admission in nowise changes either the ethical or the scientific considerations involved. In much graver crises the law of duty often demands the imperilling or even the sacrifice of a much larger measure of health. Dare the medical profession, which applauds the self-sacrifice of life in attendance upon pestilence, stultify itself by admitting that a man or a woman is not bound to observe the law of sexual morality lest he or she should suffer the trifling or periodic disturbances of the nervous system that wait upon continence? Are these so grave that they cannot be withstood? Is there no cure or control for them? Have not men and women withstood them successfully for years, while libertines and their posterity have decayed away under the ravages of syphilis? If physicians are to advise their patients by no higher law than the law of probabilities and expectancy of life, which of these two alternatives are they bound to offer to them?

As we said in the beginning, we discuss this question not upon the higher, but upon the lower, plane. We desire to make it clear as a purely scientific question. No physician can afford to pander to vice if for no better reason than because when he does so he ceases to be a scientist. And in one sense this is a high plane of thought, because it elevates medicine to its true position, as the beneficent source not only of healing, but of ethics.

A German physician has recently insulted his profession by recommending that sexual perverts should be hypnotized and then led by a series of obscene suggestions to indulge in normal but immoral intercourse. As the ancient Spartans made their slaves

drunk in order to disgust their children, so it would seem has this German writer debauched his own patients in order to repel all decent men.

EDITORIAL COMMENTS.

The Longevity of Medical Men.—Of 140 obituary notices of physicians appearing in medical journals in the six months ending July 1, 1895, in which the age of the decedents is given, we find that death occurred between the ages of

25 and 30	in 3 instances.
30 " 40	" 4 "
40 " 50	" 17 "
50 " 60	" 19 "
60 " 70	" 24 "
70 " 80	" 39 "
80 " 90	" 29 "
90 " 100	" 5 "

Although this table can have no great scientific interest, as the period of time covered by the analysis is too short and the number of deaths too small to base any conclusions on, yet it seems remarkable that more than half the number should have reached the age of seventy and over. The notices were taken without selection as they appeared each week in the more important journals and are cosmopolitan in their nature.

Dr. Kortright, in an article in the *Brooklyn Medical Journal*, already referred to in these columns, gives 54.6 years as the average age at death of 450 medical men dying in New York City. In the New England States of all deaths of persons over thirty years of age only 38 per cent. occur after the seventieth year.

Of course, we realize that the foregoing list is likely to include only those who have attained some prominence in their profession, the immortal ones as it were, and fame comes chiefly to those who have had the strength to live, whereas the many who die young in the struggle are not recorded.

The nonogenarians included Lombardy, of Switzerland, who reached the age of ninety-two; Schmid, of Germany, aged ninety-five; Dufoy, of France, aged ninety-six; Ball, of England, ninety-six; and Calmeil, of France, ninety-seven. Among the octogenarians we have such names as Detmold, Baumgarten, Symes, Reich, Noeggerath, Danneberg, Ludwig, Guerin, and Parke; among septuagenarians, Goodsir, Vogt, Mundie, Vulpius, Thiersch, Verneuil, Symonds, and Lemaestre; and among sexagenarians, Loomis, Gottstein, Dujardin-Beaumetz, Hulke, Tuke, Guillard, and Rosati.

Whether or not medical men have a shorter lease of life than other men is, after all, not of the greatest importance. "He liveth long who liveth well" is an old saying, and medical men aim to be useful, even in old age, if they are so fortunate as to attain it.

A New Woman's Medical College.—The first annual sessions of the Woman's Medical College of Kansas City, Missouri, will open October 15th. In the preamble of its announcement it is stated that after its first year the college intends to unite itself with the Medical College Association and have a four-year course. Why a beginning is made with a three-year course the trustees do not say, although in the same preamble the "insignia"

of the college is stated to be "quality rather than quantity." Another quotation is the following: "The time when medical colleges consider only their large number of matriculants as their success is past."

No student will be admitted under eighteen years of age, and the candidate for graduation must be, at least, twenty-two years of age, except students of 1895-96. Attendance on lectures and clinics will be compulsory, no one being admitted to examination unless 80 per cent. of the lectures have been attended.

The school hopes to draw its students from the South and Southwest. The faculty includes both men and women.

The Pennsylvania State Medical Examinations.—Our attention has been called to the fact that while the examinations before the Pennsylvania State Board of Medical Examiners were held on June 18th, the licence conveying the privilege to practise medicine in the State did not reach some of the successful applicants until August 28th, thus necessitating a considerable period of uncertainty and enforced idleness. It also appears that a neat income must accrue to the examiners, for upon the basis of 240 applicants at the last examination before the board representing the Medical Society of the State of Pennsylvania, each applicant paying \$25, \$6000 must have been paid in fees, while but an insignificant amount would have covered the entire expense. In view of these facts, it would appear more equitable to reduce the amount of the fee, as this must come from those ill able to afford it.

SOCIETY PROCEEDINGS.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

*Twenty-first Annual Meeting, Held in Detroit,
September 3, 4, 5, and 6, 1895.*

THE Association was called to order by DR. H. O. WALKER, of Detroit, Chairman of the Committee of Arrangements.

Prayer was offered by the REV. MARCUS A. BROWN-SON, of Detroit.

DR. WALKER then introduced MAYOR PINGREE, who paid an eloquent tribute to the medical profession, and extended a cordial greeting to the Association.

THE ADDRESS OF WELCOME,

on behalf of Detroit physicians, was made by DR. J. HENRY CARSTENS, of Detroit.

DR. WALKER presented the President of the Association, DR. WILLIAM N. WISHARD, of Indianapolis, who delivered the

PRESIDENTIAL ADDRESS.

He pointed out the importance and advancement of Detroit as represented by the standing and intelligence of the local physicians. He referred to the beginning of the four-years' course in medical colleges, and said the fear that the new rule would operate to the disadvantage of the smaller schools was unfounded. He urged the advisability of publishing the records, papers, and discussions in some manner to make them accessible to all members. He recommended a permanent Executive Committee, and regretted that the large number of papers necessitated the holding of two meetings at the same

time. He commended the preparations for the meeting, and pledged his earnest efforts to the promotion of the profit and pleasure of the convention.

The reports of the Secretary and Treasurer were read and accepted.

The reading of papers was proceeded with, the first one being read by DR. THOMAS HUNT STUCKY, of Louisville, entitled

THE GOLD-COMBINATIONS AS ALTERNATIVES.

He related that at a meeting of the Medico-Chirurgical Society of Louisville, on April 5, 1894, he had exhibited a series of cases in which preparations of gold and arsenic were employed. He was under the impression at that time that the good effect claimed was produced in three ways: (1) By stimulation of the secreting glands of the stomach; (2) by the probable alterative effect upon these secretions; and (3) that probably there was a local antiseptic influence exerted. The class of patients in which the preparations had been employed included persons afflicted mostly with pulmonary tuberculosis, nephritis in its various stages, and chronic hepatic troubles, and convalescents. It was made a rule with all these cases to withdraw all medicine except the combinations of gold and arsenic. Four or five cases thus treated were detailed. One was in a man, sixty years of age, with tuberculosis. Eight drops of "mercuric bromid of gold and arsenic" were given hypodermically every four hours for a period of two months. No deleterious results were noticed. On the contrary, the patient was decidedly better, and his physical condition, color, appetite, and bodily strength improved.

A few cases were reported out of a large number to demonstrate that the combinations of gold and arsenic act as neither of the minerals does when administered separately.

The chemic differences were pointed out between auric and sodic chlorid and auric and arsenic bromid, with reference to their therapeutic action and subsequent elimination. It was contended that the combinations spoken of enter into the circulation as gold and arsenic and expend their force and exert their influence in an alterative way upon the glandular system; that a marked alterative effect is exerted upon all scleroses (non-malignant); that they act not only as a blood-maker but as a blood-builder, increasing not only the quantity but also the quality of the corpuscles; that under their use the hemoglobin is markedly increased; that they are eliminated by the kidneys; that they produce no irritation when given either by the mouth or hypodermically.

DR. WILLIAM F. BARCLAY, of Pittsburg, read a paper entitled

LEGITIMATE PHARMACY,

which he defined as that which meets the necessities and demands of the regular medical profession and the people. The medical profession is entirely separate and distinct from pharmacy. Medicines may be divided into four classes—patented, proprietary, non-proprietary, and secret. It was maintained that there are a large number of cures, mixtures, and tonics bearing the name of their originators and deserving of consideration as proprietary preparations. Pharmacists and physicians are interdependent, but should work together. Legitimate pharmacy has called into service educated and able men, but the incompetent and dishonest have got in too,

and cannot be too severely condemned. Pharmacists make errors, but physicians are careless, too, in writing prescriptions. Physicians should not favor particular pharmacists, and should not receive commissions from them. On the other hand, it is unworthy and unprofessional for pharmacists to prescribe drugs or medicines. Legitimate pharmacy should protect the people from the nostrum-makers. Physicians have a right to demand the highest skill and competence upon the part of the pharmacist, both for his own interests and for the good of his patients.

DR. F. E. STEWART, of Detroit, read a paper on

COD-LIVER OIL.

He pointed out the powerful stimulant action of cod-liver oil on nutrition, also demonstrating with specimens the differences in the color of oil digested from fresh livers and that prepared from putrid livers, the former being pale, golden or light-brown, according to the number of hours digested, and the latter dark-brown. The darker oils contain more extractive matter. It was held that the text-books contain many errors regarding the preparation of cod-liver oil.

DR. I. N. LOVE expressed himself as rather skeptical as to the value of cod-liver oil. He took the ground that there was danger of medical men becoming too professional, and said that that which brings relief to the patient is to be commended. He favored proprietary remedies that have come to the profession through pharmaceutical channels.

DR. D. TOD GILLIAM, of Columbus, read a paper entitled

UTERINE FIBROIDS—WHEN TO OPERATE.

He stated that the medical and electric treatment of uterine fibroids is to-day in a very unsettled state. While it cannot be denied that amelioration or even recovery has followed such lines of treatment, there has not been such a degree of uniformity in results as to inspire confidence. It was held that there is no better field for a competent observer than the study of the natural history of uterine fibroids. It will enable him to determine the true value of so-called curative agencies; will insure a more certain prognosis, and will give the proper cue to surgical interference. If out of 100 cases 90 suffering women can be restored to lives of usefulness and happiness, would it not be better to give them a chance? No surgeon is justified in performing hysterectomy or the more serious operations for uterine fibroids when the patient has not experienced sufficient trouble to make the condition a menace to her life.

DR. L. H. DUNNING, of Indianapolis, read a paper entitled

TUBERCULOUS PERITONITIS.

He considered the mode of invasion, the forms of the disease, the diagnosis and the treatment, and finally detailed a brief history of five cases. He said that tuberculous peritonitis with effusion is now universally considered a surgical disease. Even in the acute suppurative cases abdominal section yields a sufficient number of successes to render its employment imperative. Senn excludes all forms of the disease from surgical treatment except the exudative form. Manclaire names as the chief contraindications to surgical treatment the generalization of the lesion and the existence of profound

systemic infection. Linder analyzes the results in 205 operations, with a mortality of 7.5 per cent. The deaths resulting in most of these cases were from collapse. When the tubes and ovaries are involved they should be extirpated. Dunning's experience in two cases leads him to the belief that the use of silk ligatures in tying the pedicle should, if possible, be avoided when it is necessary to remove the uterine appendages. A case was reported in a woman, aged fifty-six years, who came under observation for the extirpation of a fibroid tumor of the uterus. She had passed the menopause five years previously, but the tumor had gradually increased in size, at the time of examination reaching to the level of the umbilicus. There was a small amount of fluid in the abdomen, on opening which probably a quart of clear, straw-colored fluid ran out. The peritoneum and intestines were studded with innumerable small grayish deposits of the size of a millet-seed. Similar deposits thickly studded the serous covering of the tumor. The intestines were agglutinated, but were not adherent to the tumor. After removal of the tumor by supravaginal hysterectomy and ventrofixation of the stump the abdominal cavity was irrigated, and then, leaving the drainage-tube just behind the stump, the abdominal incision was closed. Recovery ensued. In a second case a diagnosis of ovarian tumor had been made, and examination revealed an encysted accumulation of fluid in the abdomen. The uterus was fixed, and an immovable mass was outlined in the pelvis upon the right side, which was believed to be a small ovarian tumor surrounded by inflammatory exudate. An exploratory incision was made, and three gallons of dark fluid evacuated from the abdominal cavity. A small tumor was felt in the pelvic cavity. The incision was enlarged, the tumor nucleated, and the pedicle tied off, together with the Fallopian tube. The left tube and ovary were likewise extirpated. On exposing the abdominal and pelvic cavities to view, it was seen that the viscera were thickly studded with grayish deposits. Microscopic examination demonstrated the presence of tubercle-bacilli. The patient was in good health eleven months after the operation. Two of the five cases reported terminated fatally.

DR. GILLIAM expressed the belief that when the ovaries and tubes are tuberculous it is better to remove the uterus too.

DR. J. FRANK, of Chicago, asked whether any of the members, who had operated for tuberculosis of the peritoneum, had noticed a recurrence, or how long the patient was immune from further attack.

DR. HUMISTON, of Cleveland, reported two cases upon which he had operated successfully.

DR. R. S. SUTTON, of Pittsburg, reported that he had seen a good many cases of tuberculous peritonitis, upon several of which he had operated successfully. Until within a year he had been in the habit of washing out the cavity with hot water, but now he pays no attention to this, simply opening the abdomen and cleaning out everything. He is convinced that while hot water does no harm, it does no good, in that it has no influence upon the disease. He believes in removing, as far as possible, all diseased organs.

DR. HENRY O. MARCY, of Boston, stated that he had operated in 1887 for the first time on a case of tuberculous peritonitis, the patient making an easy recovery.

He had operated several times since then for the same condition with excellent results.

DR. A. H. CORDIER, of Kansas City, called attention to the fact that Mr. Wells, as early as 1862, operated for tuberculous peritonitis, simply incising the abdomen and draining, thus curing his cases. He thinks that drainage is the principal factor that brings about a cure in this disease, but how is not definitely settled. He said the theory had been advanced that it is due to the admission of saprophytes into the peritoneal cavity.

DR. BAYARD HOLMES, of Chicago, related an interesting case of adhesive peritonitis cured by operation.

DR. DUNNING, in closing, said that Linder's observations were the most complete of any, and he found very little tendency to recurrence of the disease when it was primary and of the adhesive form; but when the disease was secondary and of the adhesive form there was a strong tendency to recurrence. His own experience had not been sufficiently extensive to furnish reliable data in this regard.

DR. BAYARD HOLMES, of Chicago, read a paper entitled

HYSTERECTOMY FOR PUERPERAL SEPSIS. WHEN SHALL IT BE PERFORMED? WITH A REPORT OF FOUR CASES.

The paper included (1) a report of four cases of puerperal sepsis treated by four different methods. (2) The pathology of puerperal sepsis in various stages. (3) Curettement in the hands of its advocates. (4) Puerperal sepsis as a cause of death in Chicago, New York, Brooklyn, and in the Charité Hospital at Berlin, with an abstract of 79 deaths from puerperal sepsis in 6635 cases.

The first case was in a multipara, twenty-six years of age, of Irish extraction, having a history of tuberculosis of the lungs, who was confined under unfavorable circumstances, with retained placenta, post-partum hemorrhage, delivery without an anesthetic with the hand of a physician, arrest of hemorrhage, gradual sepsis, failure of curettement, and death seven weeks after confinement.

The second case occurred in a woman, thirty years of age, who had had a normal confinement, with sepsis of a mild character appearing upon the fourth day, and gradually increasing until six weeks after delivery. The temperature was high, the pulse rapid, and symptoms of peritonitis with obstruction of the bowels developed. Celiotomy was performed, the right broad ligament, tube, and ovary removed, and drainage through the vagina provided for. Death occurred after eight days, without peritonitis, from phlebitis and pulmonary embolism.

The third case was in a multipara with a history of gonorrhea; an abortion followed pelvic inflammation, with peritonitis and obstruction three weeks after delivery. Both tubes were removed and abdominal drainage provided for. Death took place after ten days, without peritonitis, from phlebitis and pulmonary embolism.

The fourth case occurred in a multipara, thirty-two years of age, delivered by a midwife, with a bad history of puerperal infection, and rapid onset of a mild infection, without curettement. Obstruction of the bowels resulted with vomiting six weeks after delivery, and evidences of peritoneal effusion. Celiotomy was performed and the uterus and its adnexa removed; abdominal drainage was provided for and recovery ensued. The uterus and its appendages were carefully examined

microscopically. There was evidence of necrotic endometritis, suppurative metritis, suppurative endometritis, suppurative lymphangitis in both tubes, with abscess of the ovarian ligament upon the right side and adjacent peritonitis. The bloodvessels throughout the broad ligaments were occluded, indicating a progressive infective thrombosis. The uterine tissue was filled with pus-cells occupying the perivascular lymph-spaces, with occasional obliteration of large bloodvessels. A great number of *Mastzellen* were found throughout the infected tissues. It was held that the process of puerperal infection in this case was through infective thrombosis and suppurative lymphangitis, and that the removal of both tubes and drainage would have been ineffectual.

In the city of Chicago during the years from 1881 to 1894, inclusive, there were 2127 deaths from puerperal fever. In New York during six years ending May 31, 1880, there were 250,000 deaths, of which one-sixth were in females; 2236 of these deaths were due to the pregnant state. Of these, 1250 were due to puerperal infection. In Brooklyn, with 112,000 deaths during the same period, 53,000 were in females, and of these 867 died in the puerperal state, 462 from puerperal sepsis.

Of 7600 cases of labor in the hands of one of the advocates of curettement, 101 were treated by repeated curettement and irrigation. Of these, 96 recovered, and 5 died.

An abstract of the histories of these five cases was presented, showing that there was every reason to believe that after curettement had failed hysterectomy would have proved efficient in saving the patients.

A series of 6635 cases of confinement occurring in the Charité Hospital in Berlin during four successive years were then analyzed. Seventy-nine deaths from all causes occurred. Of these deaths 33 resulted from puerperal sepsis. A short epitome of the history of each case showed that only three out of these 33 cases were of such a character as to give rise to the suspicion that they might not have been saved by hysterectomy.

The following conclusions were announced: (1) Puerperal sepsis has its origin in the endometrium, and usually travels by the lymph-channels or by thrombosed bloodvessels and the lymph-channels together. (2) It still causes almost one-half of the deaths that occur in the puerperal state. (3) Curetting is ineffectual in many cases of puerperal sepsis. (4) The removal of an infected broad ligament and the drainage of a pelvic abscess or peritonitis is often ineffectual. (5) Hysterectomy should be performed, therefore, in such cases of puerperal infection as do not yield to uterine curetting and irrigation. (6) Hysterectomy should be performed whenever peritonitis is present in the course of puerperal fever. (7) Hysterectomy should be performed in cases of puerperal mania in which there is a history of endometritis without uremia. (8) Hysterectomy may not be helpful in the course of diphtheric vaginitis and endometritis. (9) Hysterectomy may not be helpful in cases of rapid early infection. (10) It may not be useful in cases of septic phlebitis reaching outside the pelvis.

DR. WM. H. HUMISTON read a paper entitled

A METHOD OF PREVENTING THIRST FOLLOWING CELIOTOMY.

He recommended that the patient should have the

usual preparation for celiotomy; *i. e.*, diet, daily baths, cathartics, etc. For three days prior to operation she should drink one pint of hot water an hour before each meal and on retiring, thus drinking two quarts of water every twenty-four hours, the last pint to be taken three hours before the time set for operating. The water is to be continued on the day previous to the operation, while the patient is restricted to a limited amount of liquid nourishment and the bowels are being unloaded. In this way is restored to the system the large loss of fluid occasioned by the free catharsis, and the patient will pass through the trying ordeal of the first thirty-six hours after the operation in comparative comfort, with no thirst, a moist tongue, and an active renal function, represented by an excretion of from twenty-eight to fifty fluidounces of urine during the first twenty-four hours, catheterization being seldom necessary. This is in keeping with the full character of the pulse noted. This plan has been recently pursued in twelve cases. In eleven chloroform was administered; in one ether. The time required to complete the operation varied from ten to fifty-five minutes. Whether the case was one of sclerotic ovaries or a pus-case with universal adhesion of all the pelvic structures, the result has been uniform and highly satisfactory, thirst being allayed and excretion stimulated.

DR. MILES F. PORTER, of Fort Wayne, Ind., read a paper entitled

CELIOTOMY IN GENERAL SUPPURATIVE PERITONITIS, WITH THE REPORT OF A CASE.

He quoted Grandin, who says regarding general puerperal peritonitis: "The women die, no matter what the form of treatment employed." Dr. Baldy says: "To my knowledge there has never been reported an undoubted case of general purulent peritonitis from any cause whatever, in which an abdominal section or any other line of treatment has succeeded in saving the patient's life." That the mortality of general septic peritonitis is large all will agree, but that it is always fatal is certainly not true. Dr. Porter then reported a successful case, and closed by saying that his object in writing the paper was to assist in arousing a sentiment against the too prevalent idea that in general septic peritonitis death is inevitable, and to encourage in these cases prompt operative interference.

DR. A. H. CORDIER, of Kansas City, Mo., read a paper on

PERITONEAL IRRIGATION AND DRAINAGE,

in which he said that the latest works on abdominal and pelvic surgery contain, like the older text-books, very short and misleading articles on the indications for peritoneal irrigation and drainage, and still less explicit directions how to use these agents intelligently and correctly. This diversity of opinion leaves the inexperienced beginner in a position of perplexity and doubt as to the special course he is to pursue in his early work. The same principles hold good in draining the peritoneal cavity that are applicable to other parts of the body. No surgeon, with all the antiseptic precautions possible to be used in opening a diffuse abscess of the thigh or other part of the body, would think of such a thing as at once closing the wound hermetically, leaving many broken-down shreds of diseased tissue in the abscess-cavity.

He might have irrigated the cavity thoroughly with a 1:1000 mercuric-chlorid solution, yet he would not feel it safe to close the wound until after he had made counter-openings and introduced a drainage-tube, this being as nearly ideal surgery as it is possible to obtain in these cases. Freshly boiled, distilled, or filtered water, cooled to between 102° and 110° F., should be used in irrigating.

The following deductions were presented: (1) Drainage is a life-saving process when properly used. (2) To use it is not an admission on the part of the surgeon that his work during the operation is imperfect. (3) The use of the tube alone does not produce or leave any condition that favors the development of hernia. (4) The omentum and other structures do not become entangled in the openings in the tube. (5) A small-sized flint-glass tube, with small openings and an open end, should always be selected for pelvic drainage. (6) The tube does not give rise to a fecal fistula. (7) The tube should be used when doubt exists as to the absence or presence of indications for drainage. (8) To depend upon microscopic findings as to whether a given case should or should not be drained is seemingly scientific, but it is neither necessary nor practicable. (9) Gauze drains should rarely be used and should always be supplemented by a glass drain. (10) There is no danger of infecting the patient through a tube if the attendant is properly instructed.

DR. J. HENRY CARSTENS, of Detroit, read a paper entitled

THREE CASES OF HYSTERECTOMY FOLLOWING CELIOTOMY FOR PUS-TUBES.

The following summary was presented:

1. In the light of present experience in cases of bilateral pus-tubes it seems that a more perfect and complete operation can be performed by abdominal section, with less danger of injury to the bladder and intestines and with a lower mortality and better ultimate results.

2. In certain cases a better immediate result is obtained by vaginal hysterectomy and drainage, but these cases frequently require a second operation to remove the ovarian tissue and parts of the tube (which cannot be removed at first in many cases) before a perfect ultimate cure is established.

3. When the sympathetic and other nerves are affected the cause is not in the uterus, ovaries, or tubes alone, but in part in each. It cannot be stated which organ is at the bottom of the trouble. Sometimes it may be only one, sometimes the other, sometimes two or all three.

4. In many cases presenting marked nervous symptoms the best results are obtained only after complete removal of every particle of the generative organs—that is, uterus, tubes, and ovaries, be this accomplished at one, two, or three operations, through the vagina or by abdominal section.

DR. R. S. SUTTON, of Pittsburg, favored abdominal section for pus-tubes. He maintained first and foremost that a uterus deprived of its appendages is of no use; second, that if left it is an organ which is liable to tuberculosis, gonorrhea, syphilis, nasty discharges, adhesions, etc. When it is decided to remove the appendages, the uterus also should be taken out.

DR. GILLIAM, of Columbus, argued against the removal of the uterus with the appendages in order to

save life, the objection being that shortening of the vagina resulted.

DR. B. M. RICKETTS, of Cincinnati, believes total extirpation will be relegated to oblivion. The dangers are cystocele, hernia, increased danger of prolonging the operation, and shortening of the vagina.

DR. HENRY O. MARCY, of Boston, favored retaining the cervix when it is healthy, and pointed out the reasons why it should not be removed. It helps materially in acting as a support to the vault of the vagina.

DR. BAYARD HOLMES, of Chicago, in discussing Dr. Cordier's paper, said that drainage is a sort of vicarious redemption for poor surgery. Whenever it is impossible to make a wound clean we must drain, and sometimes we drain when the wound is clean, but we are unable to arrest the hemorrhage. He could conceive of no other indication for drainage, whether in the abdomen, the brain, or any other part of the body, than failure to meet the one great indication of wound-treatment—to keep the wound clean.

(To be continued.)

NEWS ITEMS.

A Malpractice-suit.—A malpractice-suit recently decided in Milwaukee, Wis., is of interest in several particulars. The trouble grew out of the accidental leaving of a rubber drainage-tube in the pleural cavity. A physician, the defendant in the case, was treating a young man, aged sixteen or seventeen years, for empyema. An operation had been performed—a resection of one rib—and drainage provided for by means of two properly placed tubes; these were secured in position by two silk stitches, each stitch passing through a tube and the skin. The wound discharged freely for several days. Upon one occasion in dressing the wound, the doctor, having gathered up the soiled gauze and thrown it into the stove, noticed that one of the tubes was missing. The dressing had been removed in such a way as to lead him to think that the tube might possibly have been thrown into the stove along with the soiled dressings. Examination with probes and forceps failed to locate the tube in the empyemic cavity. The gauze was burning or burned, and it was difficult to decide positively where the missing tube was. Another complicating circumstance was the fact that on the day previous to this the dressing had been changed by the mother of the patient and in the absence of the doctor. Under these circumstances it was not deemed best to enlarge the wound or make other incisions to look for a tube that might have been thrown into the fire or otherwise lost outside of the boy's chest. The wound healed in about the usual time, and convalescence seemed fairly established. Some months later, however, there was a slight purulent discharge through a fistulous opening in the wound, and the boy was told that a second operation would probably be necessary.

The patient then consulted a second physician, by whom he was sent to a hospital and operated upon. Resection of three or four ribs was deemed necessary, and in the discharge thus liberated was found the missing drainage-tube. The patient recovered and suit was then brought against the first physician for \$20,000,

claiming damages for long illness and permanent deformity.

The case was tried three times. In the first trial the jury did not agree; in the second the plaintiff was given a verdict for \$2000; in the third the judge threw the case out on the ground that the plaintiff had not shown in the trial that his illness and disability were due to lack of reasonable skill and care on the part of his first physician.

This final outcome of the case, although not precluding the possibility of further litigation, meets with the very general approval of the local profession.

Cholera in Japan.—From the "Abstract of Sanitary Reports" of September 6, 1895, we learn that cholera has been rather prevalent in Japan and Korea. From July 20th to August 2d, in the district of Hiogo, 269 cases are reported, with 212 deaths; from July 1st to 18th, in the district of Osaka, 805 cases, with 730 deaths. Up to July 19th of this year 7901 cases have occurred, with 4804 deaths. The last epidemic in Japan happened in 1890, and lasted until 1892; in the two years over 42,000 deaths occurred from cholera.

A table, prepared by one of the secretaries of a provincial governor, shows that cholera first appeared in Japan in about the year 1822, again in 1858, and in 1877 and 1879 severe epidemics occurred; every three or four years since then the disease has assumed an epidemic character, the worst year being that of 1886, when 108,409 deaths were attributed to this cause.

In every year since 1877, even when no epidemic prevailed, a considerable number of cases have occurred, so that Japan can be said to be a cholera-center—though, of course, to a less limited extent than is India. It is interesting to note that in Japan the bodies of persons dying of cholera are cremated.

Subscriptions to the Index Medicus.—The Philadelphia County Medical Society has subscribed \$50 for two copies of the *Index Medicus*; and the Philadelphia Pathological Society \$25 for one copy.

We are informed that the subscription credited in THE NEWS of August to the Quincy Public Library is in reality that of the Adams County Medical Society, of Quincy, Ill., its copy being placed in the public library for safekeeping and for the convenience of the local profession.

BOOKS AND PAMPHLETS RECEIVED.

Circular Insanity. Report of Three Cases. By William F. Drewry, M.D. Reprinted from the Journal of Nervous and Mental Disease, 1895.

Fourth Annual Report of the State Board of Medical Examiners of New Jersey, 1894. Trenton, N. J.: The John L. Murphy Publishing Co., Printers, 1894.

Bermuta del Hospital "San Agustin," Replica de la Comision del Consejo Departamental de Higiene de Valparaiso, al voto especial de Señor Intendente, don Osvaldo Renjefo. Valparaiso: Imprenta y Litografia Central, 1894.

Documentos Referentes al Existente y al Proyecto Hospital San Agustin. Valparaiso: Imprenta y Litograf a Central Calle Coronel Urriola (Antes Almendro), 1895.

El Nuevo Hospital de San Agustin y los Seudo-Higienistas por el Doctor Luis Asta-Buruaga. Valparaiso: Imprenta y Litografia Central, 1894.

Aseptic Prophylaxis of Asiatic Cholera: Arsenization. By Reginald Barkley Leach, M.D. Pamphlet. Paris, Texas, 1895.